CONTENT

I

REMITTANCES AS A DETERMINANT OF FINANCIAL SECTOR DEVELOPMENT

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ABSTRACT

This paper studies the impact of remittances on financial sector development. Remittances sent across countries have increased enormously in the last three decades. For instance in 1980 remittances sent globally amounted to $47 billion, $102 in 1990, $321 billion in 2010, $529 billion in 2012 and $550 billion in 2013. A significant portion of remittances are received in lump sum and channelled through financial institutions which increases bank deposits, revenue for banks through transaction costs and enabling households access other financial services. Data on remittances, financial sector development and the control variables for the 31 countries for the period between 1980 and 2012 was used. General Moment Method (GMM) was used to analyse the data. The results show that remittances have an adverse effect on domestic credit to private sector and foreign direct. However the study further found that impact of remittances on bank deposit was positive though statistically insignificant. The study concludes that remittances can support financial sector development if financial institutions are effective in converting deposits to credit.

1. INTRODUCTION

Remittances comprise of personal transfers and compensation of employees. These transfers are in the form of cash or something of value made or received by resident households to or from non-resident households. Compensation of employees denotes income of border, seasonal, and other short-term workers employed in the foreign country by migrants. (World Bank 2014). Remittances transferred across countries have overgrown in the last three decades. For instance in 1980 remittances sent globally amounted to $47 billion, $102 in 1990, $321 billion in 2010, $529 billion in 2012 and $550 billion in 2013. Important to observe is that a large portion of this capital flows were received by developing countries. In 2011 the developing countries received $372, $401 in 2012 billion $414 in 2013 and a projected $436 billion in 2014. These figures show the increased importance of remittances as an alternative source of development finance.

This economic significance of remittances is useful to both the private sector and the public sector. For the private sector, remittances supplements households' income which stimulates consumption consequently triggering the demand for additional investments in production. Remittances are also a source of seed capital for entrepreneurs who cannot access conventional bank loans. Since a huge volume of remittances are sent through financial institutions or sent in lump sum, the study of remittances is of importance to financial institutions. Remittances are a source of revenue and deposits for commercial banks that facilitate the transmission of these capital flows. Remittances related transactions also enable the migrants and the households access other financial products like banks accounts and loans. A study by Aggarwal, *et al.* (2010) on a sample of 109 developing countries between 1975-2007 show that 1% growth in remittances stimulate a 0.36% increase in bank deposits and 0.29% increase in credit to private sector. The public sector investments involves large amounts of capital is not the case for developing countries that depends primarily of foreign aid and FDIs for infrastructural development. The public sector can harness international migrants' remittances for economic development either through private- public partnerships, diaspora bonds or through private direct investments. There are two economic approaches used to analyse the economic impact of remittances. Microeconomic analysis centre on the impact of remittances on migrants households consumption behaviours and lifestyle. Micro economists observe that remittances supplements household's income which is an incentive for more consumption, education and entrepreneurial undertakings. Macro-economic studies show that remittances have a long run impact on the receiving country's macro-economic indicators. However, the magnitude of these transfers hinges on whether remittances are used for consumption or investment purposes (Rapoport, 2005). Durand (1996) argues that remittances influence a country's economy directly by way of investment or indirectly through the multiplier effect of consumption which elicits investments in production to meet the demand upsurge. A country's national current account approach is commonly used to explain the macroeconomic effect of remittances by regressing remittances with indicators such as; exchange rates, Gross domestic product, balance of payment and inflation.

2. LITERATURE REVIEW

2.1 What Drives The Flow Of Remittances From The Migrants' Host Countries To Their Home Countries?

There are various theories that attempt to explain why migrants send remittances. These theories are generally referred to as endogenous. The major focus of these theories is on family economics utility and altruism and portfolio motives portrays the migrant as a self-seeking individual who will decide whether to invest in the host country, back home or both (Rocha, *et al.*, 1992). Individuals send money to their households because they value the welfare of their families referred as altruism motive. A study by Funkhouser (1995) in El Salvador and Nicaragua proclaim that remittances are a behaviour constituent of the migrant. The findings of Funkhouser (1995) maintain that the volume of remittances will be influenced by; first, the migrant's factors like the level of income and attachment to the family. Migrants with higher income tend to remit more than migrants with lower income.

The flow of remittances is also hypothesized to increase as the income level of the migrant improves and as the social ties between the migrant and his household strengthens.

Second, the migrant's family characteristics determine the frequency and the amount of remittances to be sent. The income level and the number of dependent siblings in the household will influence the migrant's decision on the amount of money to send back home. Third, the number of migrant workers from the same household working in foreign countries; it is argued that as more members of the same household migrate, the migrant will be relieved the burden of supporting his household single-handedly since this responsibility will be shared by all the migrants. However, a study by Aggarwal and Horowitz (2002) on the effect of 'many migrants' on the level of remittances shows divergent effects from those of a 'one migrant' model as used in many studies. This study maintains that under pure insurance intentions, the number of migrants in the same household would not affect the amount of remittances. The study further argues that under pure altruism, the existence of additional remitting migrants this will reduce the size of remittances.

A study by Dalen, *et al*. (2005) in Egypt, Morocco and Turkey shows that over two-thirds of the migrant-sending family unit in the three countries get remittances, and between 75 and 90% of the remittances are used to finance the daily survival expenditures on items such as food, clothing and rent - emphasizing the altruistic nature of remittances. Fundamentally, the altruism motive of remittances is founded on the argument that individuals migrate due to poverty and unemployment back home, and that after settlement in the host country they are obliged to remit home as a sign of love and care for their households. Wahba (1991) splits remittances into two components; the first component is the permanent remittances meant for household upkeep which are dependent on demographic characteristics such as family size and income level of the household. The second component of remittances is optional which is meant for investment on items such as land, stock, real estates and other localized investments. Optional investments are dependent on macro-economic factors such as interest, and inflation rate differential between host and home country and the extent the migrant is conversant with the investment climate in the two countries. In summary, it can be inferred that altruism motive asserts that: (a) migrants with higher incomes will remit; (b) poor households will receive more remittance than those which are well-off; (c) the migrant will remit more in the context of strong family bondage; and (d) remittances will reduce as more household members migrate to foreign countries. The bequest theory suggests that remittances are the bases on which inheritance decisions are to be made. Bequest motive is a self-seeking behaviour where the migrants remit in order to win favour from the head of the household and thereon ensure a large portion of his eventual inheritance upon the death of the family head. The age of the parents and the number of siblings in the family determine the amount of remittances. If the parents are approaching their final years the migrant is likely to send more; if the siblings are many the migrant send more to compete with the other sibling for inheritance. A study by Hoddinott (1994), on 215 households in Karateng Western Kenya FOUND that an additional acre of land reduces the incentive to migrate by 11%.

The study further maintains that as the age of the parents advance, parent tends to be more reliant on financial support from their children, precisely, the migrants or those offspring on formal employment. Parents maximize his utility by enticing the migrant child through bequests of items such as land and livestock. Migrants' motive to inherit from their parents predict the following; migrant remit more and frequently if a large family assets has not been bequeathed; more remittances infers more inheritances and; sons tend to remit more than daughters Lucas and Stark (1985).

Remittances can be attracted by a credit agreement between the migrant and the household back home. Under this strategy the migrants remit home as a way of refunding the family for resources spent on his educations and travelling to the host country. Migrant will start to remit back as soon as he/she settles down in the host country, Whitelaw (1974) and Poirine (1997). Members of a household can also migrate to a foreign country as a risk management technique. Risk management technique is premised on rural households in a developing country which are characterized by; unstable income, overreliance on subsistence farming, unsophisticated technology, land gradually becoming unproductive and lack of credit. Households view that foreign and urban employments are stable and unaffected by perils common to rural household such as crop failure and animal diseases. Migration therefore shields the household from geographical risk. Migrants send more if the households are undergoing economic problems such as deterioration of income, (Stark & Lucas, 1989; Rosenzweig& Stark, 1989).

There are few incentives to remit when the income level of the household is stable. Income elasticity is the major determinant of the co-insurance agreement, Coax and Jimenez (1998. Studies by Fuller, Kamnuansilpa and Lightfoot (1990) in Philippines and Hoddinott (1994) in Kenya, that sought to explain the risk management motive of remittances, found the age of the migrant as the major determinant of the volume of remittance. The age of the migrant is positively correlated to remittances up to a certain age after which the relationship smoothen out. Unemployment subjects the family to credit constraint which further explains the risk management theory. Amuedo-Dorantes and Pozo (2006) observe that migrants are risk averse and remit more when their incomes are at a risk specifically if the host country is politically and economically unstable. Amuedo-Dorantes and Pozo (2006) suggest that illegal migrants remit 3% higher than legal migrants. However, for this strategy to succeed, there is the need for a high degree of self-sacrifice where failure to remit would amount to unstable family ties and the ultimate imposition of other types of sanctions, such as denial to inherit by the household (Docquier&Rapoport, 2005). Migrants are interested in owning property back home as livestock and this could be a reason for remitting. (Ahlburg& Brown, 1998). Secondo (1997) Migrants also remit to support their offspring's left at home on basic items such as food, clothing and education, is another cause for remitting.

2.2 Financial Sector Development

A country's economic prosperity depends on the efficiency of its financial system in harnessing savings and channelling them into investments. Banking sector development contributes to socio-economic development specifically, job creation, economic growth, poverty eradication and education.

This assertion is echoed by Miller (1998) who says "financial markets contribute to economic growth is a proposition too obvious for serious discussion". The financial sector transfers resources from savers to investors (Mundaca (2005); promote investors' confidence through provision of information, risk management, transparency and governance; enhance liquidity of financial assets and facilitate the pricing of securities.

Owing to its significance many studies have been done to unearth the determinants of banking sector development. The quality of institutions for the protection of creditors and contract enforcement is central to private sector development (Levine 2004; La Porta*et al* 1997; Levine et al 2000; Demiurgic-Kunt et al 2004 and Barth et al 2004). Pagano and Volpin (2001) found the political climate as influencing banking sector development. They argue that a static political regime inhibit external financing. Gerschenkron (1962) found public ownership as a determinant. He argues that government ownership of financial institutions means more funding for the institutions. The impact of remittances on economic growth is mixed. Ayadi*et al* (2013) and Garcia and Lin (1999) found that income and capital flow are central to banking sector development. Ayadi argues that capital flows have an income effect which stimulates savings in the form of bank deposits and eventually availability of credit. Accessibility to bank credit is critical for sustained economic growth specifically in developing countries thus the need of identifying the key determinants of bank credit is an important topic for researchers. Imran (2012) observes that a strong financial system is essential for economic growth and financial market imperfections create borrowing constraints, hence lower economic and credit growth a common phenomenon in Developing countries where potential investors cannot access credit due to stringent lending conditions. By and large, bank credit is conceived from two dimensions, the demand side which encompasses firms and individual's access to credit and the supply side which involves financial institutions such as the money and capital markets. This study focuses on credit supply factors which affect the credit growth and as a result availability of bank loans for investment purposes. The key determinants of bank credit include; foreign liabilities, domestic deposits, economic growth, exchange rate, and the monetary policies, Imran (2012). A study by Harald and Heiko (2009) in Lebanon found that a slowdown in deposits inflow tightens financing condition for the government and this sooner or later leads to slow or no economic growth. Studies by Mundaca (2005), Giuliano*and Zazzaro* (2006) shows that remittances and banking sector development are complementary to economic growth implying that a developed financial system multiplies the economic impact of remittances and vice versa. Aggarwal et al (2004), Beck et al (2007) and Gupta el al (2009) argue that remittances support banking sector development in the recipient country. Contrary to the complementary view is the finding of a study down by Giuliano *and Ruiz* (2009), in countries considered to have underdeveloped financial institutions, found that remittances spur economic growth suggesting that remittances substitute's banking sector development. Another argument put forward in literature explains the effect of remittances on stock market development. Billmeier and Massa (2009) found that the impact of remittances on stock market development is significant in countries without a sizeable natural resource endowment this finding infers that remittances are compensatory in nature.

Most of these studies link remittance and financial sector and economic growth and none of them has endeavoured to establish a direct link between remittances and banking sector development. Ayadi et al (2013) concludes that the impact of remittances has been under explored and further argue that remittances are received and saved in deposit accounts in banks and provide unbanked recipient with information about other banking products.   This paper therefore seeks to establish the effect of remittances on banking sector development specifically, the growth of bank credit.

2.3 Theoretical Considerations

Banks depend on household savings as a source of loanable funds. There are three key motives for holding money; transactions, precautionary and investment motives. These motives are satisfied by three types of deposits; demand savings and time deposits. Demand deposit is a synonym of current account intended for transactional motive. The second type of deposit is the savings accounts meant for households that wish to save money and earn interest earn interest on the deposit. Households keep their savings in bank accounts for precautionary reasons even though they are simultaneously induced by investment motives. Precautionary motive for holding money denotes households desire to hold cash balances for unanticipated eventualities. On the other hand the speculative motive relates to the desire to hold liquid assets form to profit from market imperfections leading to future changes in the rate of interest and return. These final class of deposits are referred to as time deposits that cater for the investment motives of households with idle funds and expecting higher returns on their money. From the depositor's viewpoint three theories describes the savings behaviour; the life cycle hypothesis developed by Modigliani and Brumberg (1954); the permanent income hypothesis by Friedman (1957); and buffer-stock theory of savings behaviour by Deaton (1991 and Carroll, (1992). From literature, household savings is the main source of deposits for banks. At macro-economic level several factors have been identified as key determinants of household savings. Qin (2003) found that the expected savings as the key contributing factor of bank deposits. Similarly to their Taiwanese counterparts, interest rate seems to be an important consideration to Mainland Chinese in making deposits. He concluded that precautionary was one of the essential factors that motivated them to save. A study by Hondroyiannies (2004) in Greece found that in the long run savings are sensitive to fertility changes, old dependency ratio, real interest rate, liquidity and public finance. Ozcan et al (2003) study in Turkey found income levels, financial depth and inflation stimulates saving while Athu-Korala and Tsai (2003) found population dynamics, disposable income, social securities contributions and financial reforms. By merging Friedman's (1957) proposition on permanent income (which determines household savings) and Wahba's assertion of permanent remittances (which are intended for household upkeep and influenced by demographic characteristics such as family size and income level of the household) its logical to argue that remittances complement households income subsequently households savings and eventually an increment in bank deposits advanced as loans to investors.

Studies show that remittances compensate the household for the credit constraints created by inefficiencies in the financial sector.

Ramirez and Sharma (2008) note that remittances play an important economic role in countries whose financial sector is considered inefficient, A sound financial sector is able to harness remittances through incentives such as financial agents who facilitate transfer of remittances, securitization of future remittances receipt as collaterals for bank credit, lowering transfer costs and financial advice. These incentives encourage migrants to use official channels of remitting, Freud &Spatafora (2008). Remittances are also linked with banking sector development. A study by Demirgüç-Kunt, *et al*. (2007) in Mexico found that 1% increase in the number of remittance receiving household translate to 0.16% increase in the number of bank branches; a 25% increase in the number of bank accounts and; a 2.5% points in the deposit/GDP ratio.
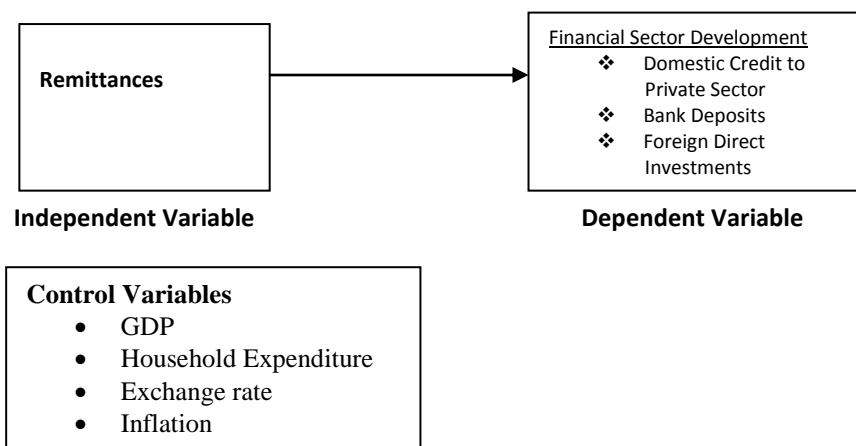
Banks transacting directly with the households hold crucial information for instance when remittances are expected and the amount of receipts. This kind of information can be used as collateral by bank, referred to as securitization of remittances, for the purpose of lending. Securitization of remittances allows regular recipients of remittances to access credit at a preferential interest rate. A study by Ketkar and Ratha (2009) shows the presence of untapped remittances based securitization of $12 billion in the following countries: Brazil, El Salvador, Morocco, Yemen, Ukraine, India, Sri Lanka, Brazil, India, Pakistan, Serbia, Montenegro, Peru, Senegal and Tajikistan. Banks back home can also advance transnational loans to migrants on agreement they will repay the loan while still abroad. Migrants can borrow mortgage loans and investment back home as personal investments or on-behalf of their families who could be facing credit constrains. In Mexico for instance, a partnership between the government and other financial intermediary, Mexico Sociedad Hipotecara Federal (SHF) advanced loans to 3,500 of its citizens residing abroad in the period between 2004 and 2008 (Barranco, 2010). Terrazas (2010) recognized five channels used to marshal Diaspora wealth through the capital markets: deposit accounts characterized by both local and foreign currency; securitization of remittances by commercial banks; transnational mortgages; Diaspora bond for the governments; and Diaspora mutual funds.

Remittances are usually received in lump-sums owing to high transaction costs. Subsequently, households require financial services for safe keeping of money for a relatively long period of consumption. These deposits will increases the assets of the receiving bank which will then allow them to increase their lending and investment capacity. Dustmann and Joseph (2010) argue that up to 48% of migrants in Germany hold savings in their country of origin. In regard to these, many developing countries such as Ethiopia, Kenya, India, Nigeria and Turkey have liberalized their financial systems allowing foreigners to open Foreign Current Deposits (FCD) accounts in an attempt to attract Diaspora savings. Remitting charges are a source of income for commercial banks. The financial sectors boost the developmental impact of remittance through financial intermediation and eventually economic growth. Remittances channelled through banks are likely to be saved which enables the household access other financial products offered by the banks for instance education policies and health insurance schemes. Developed countries like the USA, UK and countries in East Asia have developed financial markets which facilitate the participation of the diaspora in mainstream investment segments.

However, the types of securities purchased by the migrants depends on two factors; whether the migrants are first generation which is highly inclination to direct investments or second generation that favour portfolio investments that are less demanding. Capital markets support private sector development through marshalling and distributing financial resources (Applegarth, 2004). Owing to the importance attached to cross country capital flows, countries are now redefining their priorities towards a fast and sustained economic growth through progressive foreign investment strategies. Some of the strategies adopted focus on; fiscal and monetary policies, trade liberalization and partnering with other international development agencies such as United States Agency for International Development (USAID) and Overseas Private sector Development Corporation (OPIC), International Monetary Fund (IMF) and World Bank. Rwanda has established the- Rwanda Diaspora Fund for Rwandese working abroad in finance industries.

Diaspora bonds have been issued by countries such as Israel to its Jewish migrants, India 1991, 1998 and 2000; Ethiopia to its migrants in Middle East (Birks & Sinclair 1978) and Ghana's $ 50 million Diaspora bond of 2007. The Diaspora bonds are issued regularly to the Diaspora to finance capital expenditure of major infrastructures such as electricity and roads where the domestic credit is constrained or in an attempt to finance current account deficits. Diaspora participates in main stream capital investment in their home countries. Leblang (2009) argues that 1% growth in migrants stock from country A to home country B explain a 0.2% portfolio investment of country B in A. Another significance of remittance is the fact that the banking sector earns a lot of revenue from agency, processing and other transactions involving remittances transfers from the host country and home country.Little effort has been made to establish remittances-banking sector development causality notwithstanding numerous financial dealings involving the two variables ranging from money transfers to bank deposits. This paper therefore endeavours to establish the empirical relationship between remittances and financial sector development. The relationship between the research variables is shown below.

Figure 1: The Conceptual Framework of the Research Study

Remittances		Financial Sector Development
		❖ Domestic Credit to Private Sector ❖ Bank Deposits ❖ Foreign Direct Investments

Independent Variable   **Dependent Variable**

Control Variables
- GDP
- Household Expenditure
- Exchange rate
- Inflation

3. DATA AND MODEL SPECIFICATION

This study investigates remittances as a determinant of financial sector development. The study uses annual data for econometric analysis for a period of thirty years from 1982 to 2012 collected by World Bank. Financial sector development is the dependent variable while remittances are the explanatory variable as shown in figure 1. The study controlled for; the state of the economy measured by GDP per capital; effectiveness of the monetary regime proxies, Exchange Rate and Inflation rate; household incomes and savings measured by gross household. The data obtained from the World Development Index (WDI). T

he model used in study is as follows;

$$\text{FSD}_t = \beta_0 + \beta_1 \text{REM}_t + \beta_2 \text{INF}_t + \beta_3 GDP_t + \beta_4 EXCH_t + \beta_5 HCEXP_t + \mu_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots$$

Where; FSD is the Financial Sector Development measured by bank deposits (DEPOSITS), domestic credit (DOMESTIC CREDIT) and foreign direct investment (FDI). The reason for the inclusion of FDI as an additional measure of financial sector development is the fact that remittances as transnational capital flows that boost the transfer of technology new management concepts and culture that leads to productivity and economic growth. REM is Remittances, INF inflation, GDP is Real Gross Domestic Product Growth, and EXCH is Exchange Rate, HCEXP household expenditure and $\mu t \textbf{\textit{is}}$ the error term. All variables are taken in aggregate form since the study is macroeconomic.

The equations are estimated using GMM dynamic panel estimator. GMM helps minimize biases arising from endogeneity the causality between remittances and financial sector development can run in both directions. The data was analyzed by use of STATA software. The study hypothesize that remittances from abroad, deposits by the domestic businesses and individuals, inflation rate, economic growth, exchange rate and the monetary policies have a positive effect on domestic credit to private sector whereas the money market rate decreases the private credit.

4. EMPIRICAL RESULTS

This section presents the data used for the analysis shown by graphs 1,2,3,4,5,6,7 and 8 below. The graphs further show the trend of the research variables for the entire period under study. This section further discusses the summary statics, correlation analysis and concludes by analyzing the output of the regression model.

Graph 1: Growth in Remittance (1980-2012)
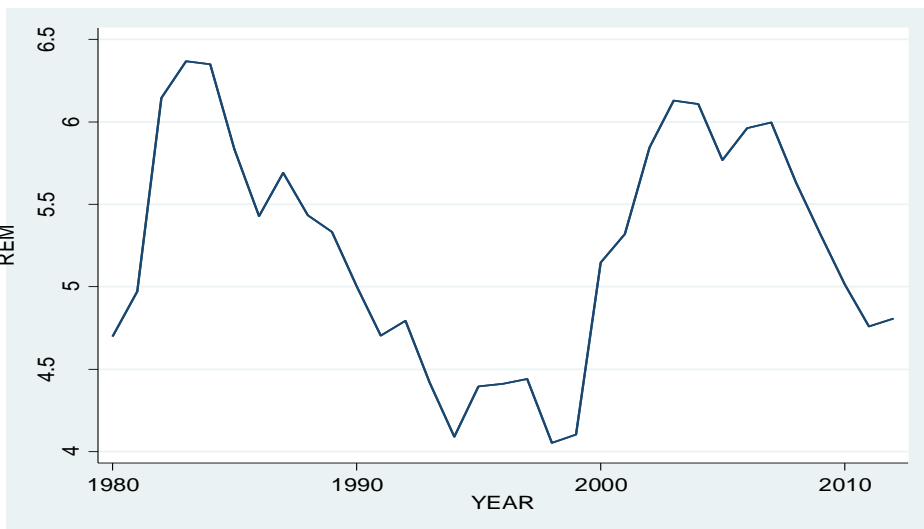
Graph 2: Growth in Bank Deposits (1980-2012)
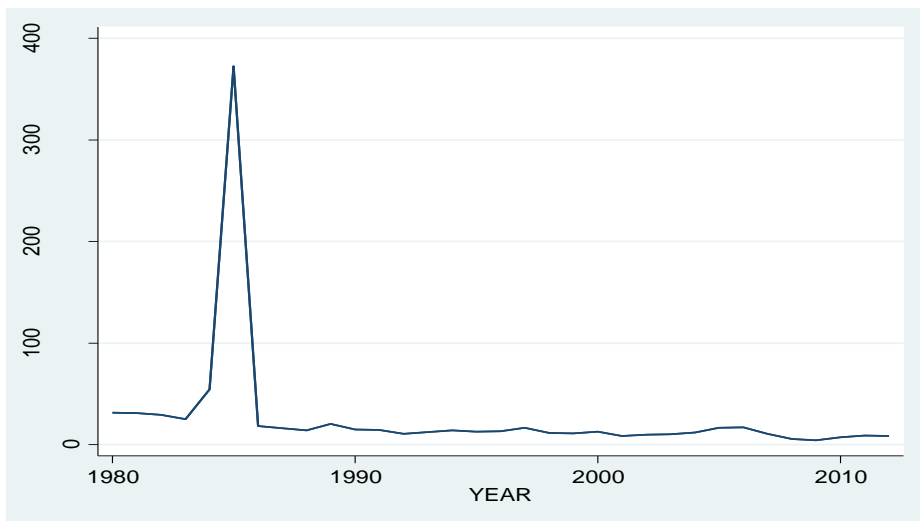
Graph 3: Growth of Credit to Private Sector (1980-2012)
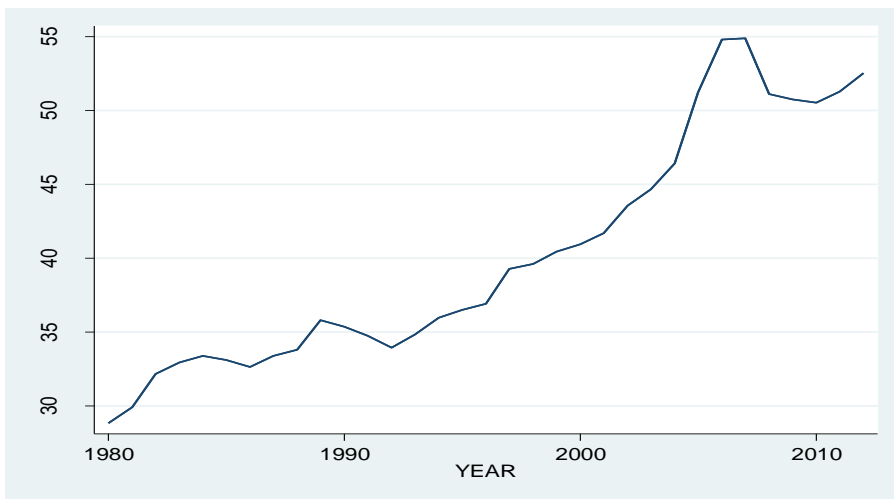
Graph 4: Growth of Foreign Direct Investments (1980-2012)
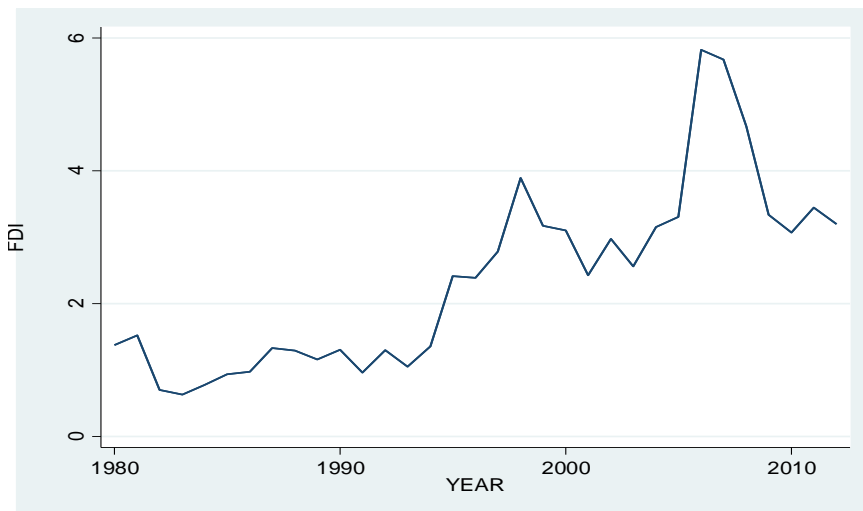
Graph 5: GDP growth rate (1980-2012)
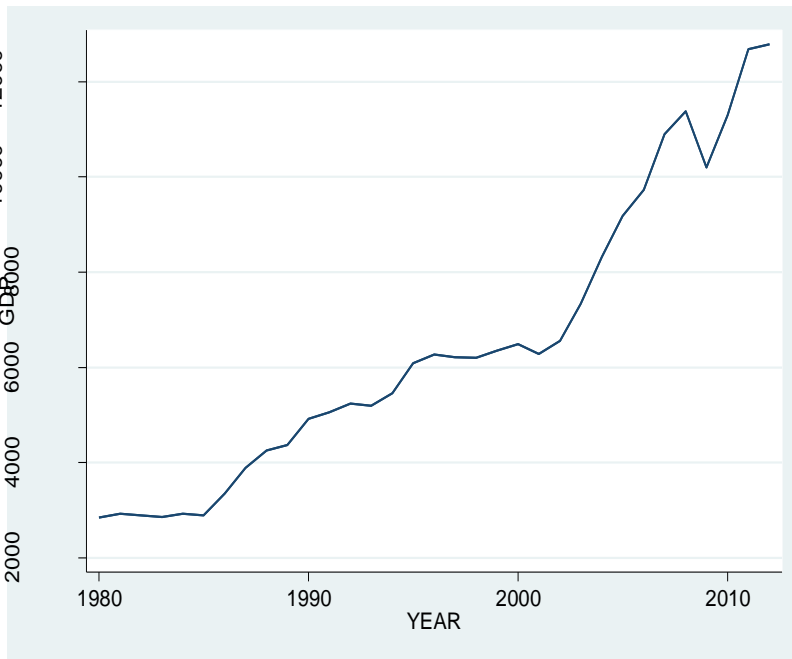
Graph 6: The trend in exchange rates (1980-2012)
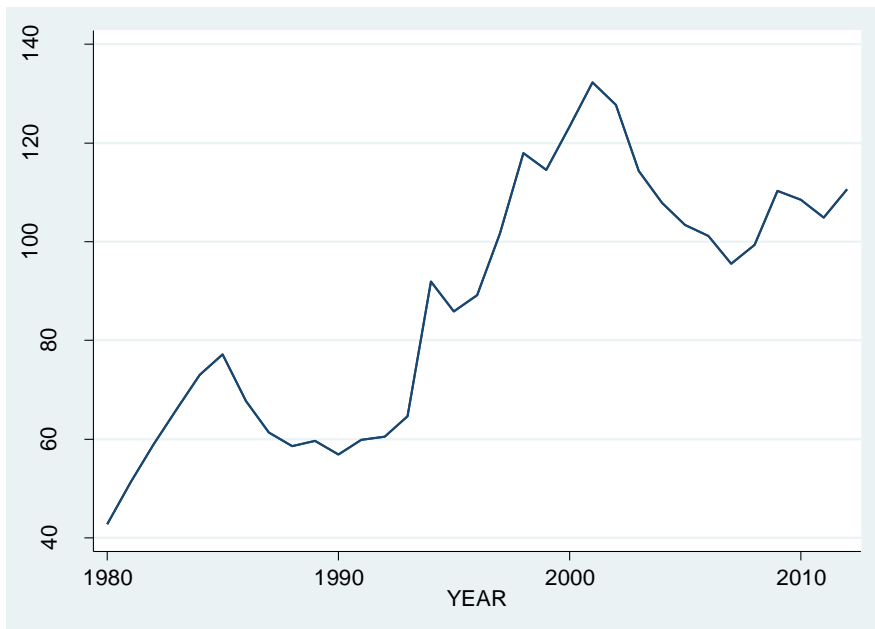
Graph 7: Growth in Household consumption (1980-2012)
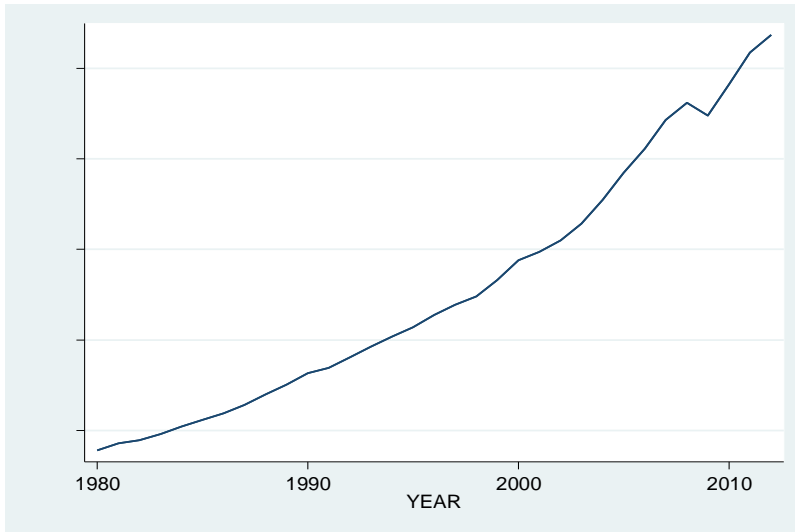
Graph 8: Trends in Inflation (1980-2012)
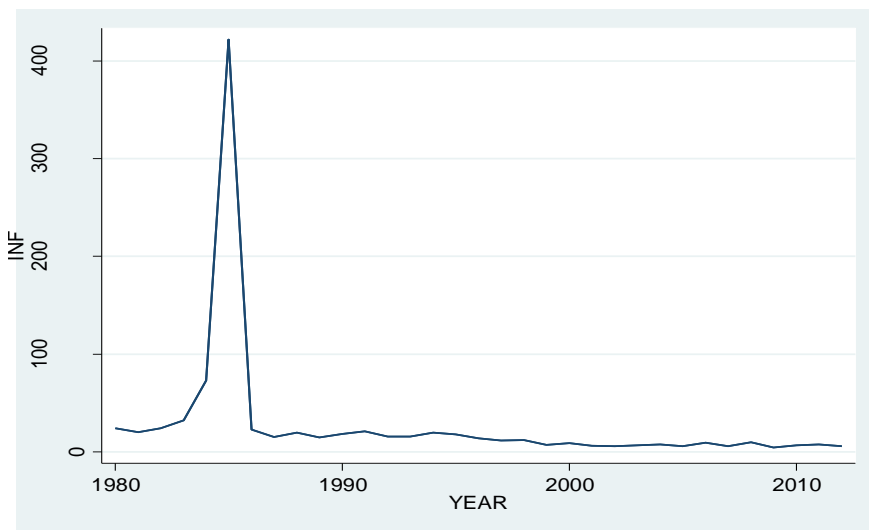
From graph 1 it can be deduced that there was a gradual increment in remittances received between 1982-1986 followed by a sharp decline between 1986-1994. It can also be observed that remittances grew between 1998 to 2012. Bank deposits and inflation showed no growth throughout the period as illustrated by graphs 2 and 8 respectively.

Graphs 3, 4, 5, 6, and 7 show that domestic credit to private sector, GDP and exchange rate, FDI and Household consumption grew constantly throughout the period.   The summary statistics for variables is shown in appendices 1 and 3. The average remittances received are estimated at 5.22% of the GDP of the 31 countries under study. Domestic credit to the private sector was averaged at 40% of GDP while claims to the private sector were 26.52% of GDP. The results indicate ineffective monetary policies as shown by the high exchange rate (87 units per USD) and inflation rate of 27%. The study found significant improvements in GDP per capita (current USD) as reported by 2,845.14 in 1980; 4,916 in 1990; 6494 in 2000 and 11,305 in 2010. The average FDI net inflow is estimated at 2.3% of GDP for the selected countries with Lesotho receiving the highest FDI of 35.23% and Botswana the lowest -6.89609% in the period1980-2012. The correlation matrix in Appendix 2 show that remittances are negatively correlate with bank deposits (-0.217) and a significant negative correlation of remittances with domestic credit to private sector (-0.1331*) implying that remittances substitute bank credit. Remittances and foreign direct investment have a positive and significant relationship (0.225*) that suggest common determinants of the direction and magnitude of the two external capital flows. The Remittances-FDI association further reinforce the fact that migrants send remittances with an intention to invest back home. GDP per capita, household consumption expenditure, exchange rates and inflation are negatively correlated to remittances which support the assertion remittances are compensatory in nature. Some of the macroeconomic identified as having a positive association with domestic credit to private sector development include; GDP per capita (0.712*), household consumption expenditure (0.087), FDI's (0.212**) and exchange rates (0.064). The rate of inflation is negatively correlated to domestic credit (-0.033) which is consistent with the conventional monetary policies theories on inflation and lending. GDP per capita, household consumption expenditure, FDI and exchange rate were all found as negatively related to bank deposits.   For instance high household expenditure discourages savings and eventually banks claims to private sector. Contrary the rate of inflation encourages high bank deposits reported by the statistically significant correlation coefficient of 0.997**. The results of the panel analysis are tabulated in appendices 4, 5 and 6. The effect of remittances on the three measures of financial sector development is statistically insignificant. Remittances will adversely impact on domestic credit to private sector and foreign direct investment as reported by beta coefficients of (–0.013925) and (-0.013925) respectively. This observation supports Giuliano and Ruiz-Arranz (200) argument that remittances substitute bank loans. Remittances were found as exerting a positive effect on bank deposits. These findings can be interpreted in two ways. One, remittances channeled through official means such as banks have the net effect of increasing bank claims to the private sector. Two, since remittances are received as lump sum amounts due to high transaction costs, households deposits such cash inflows with banks and withdraw them over the consumption period.

5. CONCLUSION

Many studies have been done in an effort to explain the combined effect of remittances and financial sector development on economic growth. This study sought to establish whether remittances are a determinant of financial sector development since a sound financial sector is linked to increased investments and ultimately economic growth. The study concludes that remittances adversely affect financial sector development since this capital flows are informal, altruistic and purposely intended for household consumption. The study found the relationship between remittances and bank deposits as being positive though statistically insignificant. These findings suggest a missing link between bank deposits and domestic credit to private sector. Financial institutions are advised to be more prudent and creative in attracting remittances, transforming them into bank deposits and advancing them as credit through lending.

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Appendix 1: Descriptive Statistic Period Average 1980-2012

Variable	Obs	Mean	Std. Dev.	Min	Max
REM	1023	5.226302	11.72758	.0014116	106.4789
DEPOSIT	1023	26.52316	347.311	-128.9158	11046.93
CREDIT	1023	40.25466	36.37847	1.542268	319.4609
GDP	1023	6465.54	11945.53	168.7364	83270.24
HCEXP	1023	2.57e+11	1.15e+12	3.19e+08	1.11e+13
EXCH	1023	87.84052	212.4691	.0000245	1401.437
INF	1023	27.63552	388.7528	-11.16159	12338.66
FDI	1023	2.366346	3.510459	-6.897609	35.23495

Appendix 2: Pairwise Correlation Matrix of the Research Variables

		REM	DEPOSIT	CREDIT	GDP	HCEXP	EXCH	INF	FDI
REM	Pearson Correlation	1	-.022	-.133**	-.178**	-.089**	-.108**	-.019	.225**
	Sig. (2-tailed)		.488	.000	.000	.004	.001	.540	.000
DEPOSIT	Pearson Correlation	-.022	1	-.013	-.016	-.013	-.015	.997**	-.023
	Sig. (2-tailed)	.488		.673	.619	.683	.630	.000	.464
CREDIT	Pearson Correlation	-.133**	-.013	1	.712**	.087**	.064*	-.033	.212**
	Sig. (2-tailed)	.000	.673		.000	.005	.040	.297	.000
GDP	Pearson Correlation	-.178**	-.016	.712**	1	.460**	-.009	-.025	.122**
	Sig. (2-tailed)	.000	.619	.000		.000	.786	.417	.000
HCEXP	Pearson Correlation	-.089**	-.013	.087**	.460**	1	-.049	-.013	-.051
	Sig. (2-tailed)	.004	.683	.005	.000		.115	.673	.101
EXCH	Pearson Correlation	-.108**	-.015	.064*	-.009	-.049	1	-.022	-.087**
	Sig. (2-tailed)	.001	.630	.040	.786	.115		.488	.006
INF	Pearson Correlation	-.019	.997**	-.033	-.025	-.013	-.022	1	-.028
	Sig. (2-tailed)	.540	.000	.297	.417	.673	.488		.371
FDI	Pearson Correlation	.225**	-.023	.212**	.122**	-.051	-.087**	-.028	1
	Sig. (2-tailed)	.000	.464	.000	.000	.101	.006	.371	
									1023

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix 3: Per Country Average Values of the Research Variables for the period 1980-2012

COUNTRY	REM	DEPOSIT	CREDIT	GDP	H.INCOME	EXCH	INF	FDI
ALGERIA	1.2404788	4.87624229	28.3464745	2548.76826	32503255721	42.5042645	13.2236327	0.67567087
BOTSWANA	1.88937133	8.95386878	15.6967632	3319.39714	2349928072	3.73552386	9.69953888	3.24315288
CAMEROON	0.36975613	5.10583559	16.1208005	876.468993	9166980690	453.903902	4.83122156	1.19581389
COSTARICA	0.86894976	16.0244361	24.7612904	3771.35904	10116183995	453.903902	17.9652846	3.25162671
DOMICIAN	5.94425825	18.3460301	25.3356193	2445.91016	17645525904	17.2095536	16.2864072	2.65384838
EGYPT	7.25045515	6.70531897	35.9553974	1236.00779	62126583858	3.29081579	10.5405737	2.44754175
GUATEMELA	4.45561285	10.8710123	20.0745376	1681.15129	16428708071	5.30990654	10.2987482	1.41882334
INDIA	2.07820659	10.1025021	30.2566544	569.025558	3.70893E+11	31.3084453	7.58538578	0.7469452
ISRAEL	0.91524766	55.3593263	73.655736	16203.105	58216347955	2.79261868	43.6860804	2.04521593
JAMAICA	9.37952456	9.13752486	25.2315939	2866.6025	5552684636	36.3203783	17.8232271	3.11285387
KENYA	2.13000177	10.3855852	24.0166385	465.446616	10625306834	49.6933004	10.272596	0.5490015
JORDAN	18.6793739	6.92160255	67.5335713	2255.9957	8036450495	0.6040712	5.02147674	4.40104513
KOREA	0.84871542	21.6478158	76.5745715	11112.821	2.66617E+11	945.797817	5.31268084	0.61604414
LESOTHO	59.6363399	6.17671965	15.0332498	501.235088	1026803623	4.72080166	10.3271308	7.88575278
MEXICO	1.46688878	20.9612795	17.4031969	5272.16727	3.68504E+11	6.34999329	29.511649	1.96812609
PAKISTAN	4.8365547	8.0333081	24.3144951	556.881592	61487356921	41.4806622	9.8423267	0.9542114
SENEGAL	5.1746497	6.06258854	24.4538902	681.582038	5094983443	453.903902	4.39886751	1.21953797
SUDAN	2.86054906	12.973795	7.77619298	643.324959	15675765689	1.24428218	38.3943963	2.02925346
SWAZILAND	6.36175444	10.7033841	18.5248464	1623.23344	1331479158	4.72059293	9.78528059	3.75147328
SWITZERLAND	0.46348271	6.55894452	150.730729	40574.789	1.74582E+11	1.488679	1.98591234	2.80958791
THAILAND	1.2161221	14.1466445	94.1688022	2251.94318	77950661491	30.6839633	3.97160688	2.37002588
TUNISIA	4.12246786	12.9619032	53.3866076	2315.02203	13401982363	1.05819457	5.75513449	2.53792827
TURKEY	1.58741121	36.2838517	22.4551582	4323.90829	1.9576E+11	0.58194292	46.5362707	0.86423136
USA	0.02647019	4.19844306	51.6503039	31498.8224	5.83362E+12	1	2.92682011	1.18008328
HONDURAS	7.10792943	14.543139	35.9183122	1103.17298	5077344221	10.4732915	10.916524	2.95053262
AUSTRALIA	0.43847297	13.7824495	75.4117927	24992.9629	2.76048E+11	1.31812256	4.62464251	2.35188967
BOLIVIA	1.73101095	395.975596	36.0266883	1083.97528	6208597323	4.54727691	446.202912	3.27974101
BANGLADESHIA	5.10627687	12.0014536	23.5663033	357.225662	35805552192	46.050584	6.70512719	0.36746651
ICELAND	0.5323423	41.2738674	86.5223969	30176.8085	4878937551	65.0515852	15.20538	3.76733923
FIJI	2.96068133	7.5732507	38.7499298	2552.38649	1378670384	1.54931455	5.08705899	4.25509716
GHANA	0.33600878	13.5703755	8.24195149	570.248383	8473116537	0.45833412	31.9771252	2.45686056
AVERAGE	**5.226302**	**26.52316**	**40.25466**	**6465.54**	**2.56664E+11**	**87.84052**	**27.63552**	**2.366346**

Appendix 4: Regression Of Domestic Credit On Remittances

```
Arellano-Bond dynamic panel-data estimation  Number of obs      =       961
Group variable: ID                           Number of groups   =        31
Time variable: YEAR
                                             Obs per group:  min =        31
                                                             avg =        31
                                                             max =        31

Number of instruments =     502              Wald chi2(5)       =   5719.02
                                             Prob > chi2        =    0.0000
One-step results
```

CREDIT	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
CREDIT						
L1.	.8225182	.0147025	55.94	0.000	.7937017	.8513346
REM	-.013925	.0581362	-0.24	0.811	-.1278697	.1000198
GDP	.000264	.0000516	5.11	0.000	.0001628	.0003652
HCEXP	-1.42e-13	6.27e-13	-0.23	0.821	-1.37e-12	1.09e-12
EXCH	.0047183	.003846	1.23	0.220	-.0028198	.0122563
INF	.0004377	.0004715	0.93	0.353	-.0004864	.0013618
_cons	5.756757	.6182712	9.31	0.000	4.544968	6.968547

Appendix 5: Regression of Bank Deposits on Remittance

```
Arellano-Bond dynamic panel-data estimation   Number of obs      =      961
Group variable: ID                            Number of groups   =       31
Time variable: YEAR
                                              Obs per group:  min =       31
                                                              avg =       31
                                                              max =       31

Number of instruments =    502                Wald chi2(5)       = 346932.54
                                              Prob > chi2        =   0.0000
One-step results
```

DEPOSIT	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
DEPOSIT						
L1.	-.0007545	.0016973	-0.44	0.657	-.0040812	.0025721
REM	.2765121	.2192016	1.26	0.207	-.1531151	.7061393
GDP	-.0000325	.0001487	-0.22	0.827	-.0003241	.000259
HCEXP	1.74e-12	2.94e-12	0.59	0.553	-4.02e-12	7.51e-12
EXCH	-.0038141	.0143715	-0.27	0.791	-.0319818	.0243536
INF	.8920907	.0015182	587.60	0.000	.8891151	.8950663
_cons	.2878306	2.039632	0.14	0.888	-3.709774	4.285435

Appendix 6: Regression of Foreign Direct Investments on Remittances

```
Arellano-Bond dynamic panel-data estimation  Number of obs       =       961
Group variable: ID                           Number of groups    =        31
Time variable: YEAR
                                             Obs per group:  min =        31
                                                             avg =        31
                                                             max =        31

Number of instruments =    502               Wald chi2(5)        =    645.59
                                             Prob > chi2         =    0.0000
One-step results
```

FDI	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
FDI						
L1.	.5990597	.0259791	23.06	0.000	.5481415	.6499778
REM	-.0283299	.0232629	-1.22	0.223	-.0739245	.0172646
GDP	.000081	.0000199	4.07	0.000	.000042	.00012
HCEXP	-3.76e-13	3.24e-13	-1.16	0.246	-1.01e-12	2.59e-13
EXCH	.0035441	.0020414	1.74	0.083	-.000457	.0075453
INF	.0000153	.0002211	0.07	0.945	-.000418	.0004486
_cons	.392447	.2433312	1.61	0.107	-.0844735	.8693674

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THE ECONOMIC GROWTH EFFECTS OF THE EUROMED FTA

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ABSTRACT

This paper analyzes the economic growth effect of Euro-Mediterranean Free Trade Agreement on European Union and Middle East and North Africa countries with using panel cointegration analysis for the period 1996-2011. In the first step, heterogeneity and cross-section dependence among countries were tested and found that all series have cross-section dependence. For that reason, second generation panel unit root and panel cointegration tests were used. This paper also gives country-specific results at the long-run model via using Common Correlated Effect Model. This contribution provides crucial information about the European Union countries and Middle East and North Africa countries.

1. INTRODUCTION

Economic integration means that increasing international economic collaboration (Tinbergen, 1965). According to another definition, economic integration is of combination of political and economical issues (Balassa, 1987). Stages of economic integration starts with preferential trade area, and then goes by respectively free trade area, customs union, monetary union, fiscal union and political union. In this paper, we tried to investigate the economic growth effects of Euro-Mediterranean (EUROMED) Free Trade Agreement (FTA).

In a FTA, tariffs between members are abolish or significantly reduced. But relationship with the other countries is not arranged. Each member keeps its own tariffs to third countries. The expected economic effects of FTA are concerned with foreign direct investments, economic growth, increasing trade relationship and reducing trading costs.

During the second quarter of the 21th century, it is observed that global and regional economic integrations have increased. Especially in the 1960s, the member states of the European Economic Community and European Free Trade Area (EFTA) reached at high level of growth rates. This situation caused a belief that economic integrations have a significant role on the economic growth.

Many researchers believe that increasing economic integration among the developed countries increase the long term economic growth rates. Henrekson et al. (1997) found that membership of Economic Comity and EFTA had considerably increased the economic growth rates. According to their results, regional integration in Europe increases economic growth in the long-run. Brada and Mendez (1988) argued that faster technological development raises competition among the firms of the member states. National monopolies and oligopolies confront with foreign rivals. Therefore, increasing competition stimulates research and development activities and better management practices are emerged. The size of the firms grows larger and it leads to better production specialization, higher research costs and scale economies. Consequently, resources are allocated to advancing sectors at a higher speed. Consequently, total factor efficiency and growth increase occurs as a result of integration. According to Grossman and Helpman (1995), it was highly difficult to reach a universal conclusion about the growth effect of economic integration. Some researchers believe that restrictions in trade slow down the speed of growth around the world while others do not accept this idea. Romer (1993) showed that the growth rate increases if economic integration in Endogenous Growth Model provides two economies with the opportunity of benefiting from increasing scale economies. With respect to this model, integration ensures trade of goods, flow of ideas or both. Baldwin (1989) argued that trade deficiency, removal of non-tariff barriers and the enlargement of market increase the net profits. If more countries become a member of the union, higher growth rates are achieved. Dollar (1992) examined the sources of economic growth in 95 developing countries and finds a strong positive correlation between a measure of outward orientation and per capita Gross Domestic Product (GDP) growth.

Frankel and Romer (1996) used cross-country regressions, and found that trade has a quantitatively large, significant and robust positive effect on income. Baldwin and Seghezza (1996) put emphasis on the effect of the European integration on the economic growth. They developed two models first one was the per capita GDP growth model. This model included the population growth rate, human capital investments, initial level human capital and the ratio of investments to GDP. In the second model, investment equality was estimated by adding the investment rate and domestic and foreign trade barriers. It was found that domestic and foreign trade barriers tend to reduce the investments and consequently have a negative impact on the growth. Wacziarg (1998) investigated the links between trade policy and economic growth using panel data of 57 countries for the period 1979-1989. The results suggested that trade openness had a strong positive impact on economic growth. Vanhoudt (1999) tested the hypothesis of Neo-classical Model that regional integration did not have an impact on long-term growth rates against Endogenous Growth Model. He used panel data method for 23 countries of Organization for Economic Cooperation and Development (OECD). But he could not find a positive correlation between either EU membership or the number of members and growth. Bhagwati and Srinivasan (2002) pointed out that practically none of the countries which close to autarky had managed to sustain a high growth performance over a long period. Borota and Kutan (2008) found that physical capital accumulation does not have a significant impact on the growth of per capita GDP.

Willem (2011) examined how regional integration leads to convergence and growth among 100 developing countries for the period 1970-2004. He couldn't find robust growth effect of regional integration. The organization of the paper is as follows. The second section investigate special features of the EUROMED FTA. The following part put forward theoretical model of economic growth effect of this free trade agreement. The empirical analysis showed economic growth effect of EUROMED FTA both for Mean Group and for majority of individual countries through Common Correlated Effect Model. Summary and concluding remarks are provided in the last section.

2. EUROMED FTA'S SPECIAL FEATURES

Perfect competition and free trade gives the first best condition, so economic integration is the second best condition when compare with the free trade (Lipsey and Lancester, 1956-1957). The starting point of this paper is concerned with ensuring free trade. In addition to this, it is specifically in EUROMED FTA.

EUROMED FTA envisaged by the Barcelona Declaration of November 1995. Twelve North African and Middle Eastern countries and fifteen European Union (EU) countries gathered at Barcelona. The aim of this declaration was to create free trade area in the Mediterranean Region and the Middle East, and deepening South-South economic integration. Now it has 27 EU countries, and 16 partner countries (Albania, Algeria, Bosnia and Herzegovina, Croatia, Egypt, Israel, Jordan, Lebanon, Mauritania, Monaco, Montenegro, Morocco, Palestine, Syria, Tunisia and Turkey).

On account of Barcelona Declaration, there is an asymmetry problem in the EUROMED FTA between industrial sector and agricultural sector. Because it emphasizes that competition is good but shouldn't be same in the all sectors. Therefore the countries in question try to increase liberalization in the industrial sector, but on the other hand they protect agricultural sector. It causes asymmetry problem in the EUROMED FTA. It may be causes some important economical and political problems in the countries at issue. Whereas even under these unavailable conditions an economic integration provides positive economic growth effect. For this reason, this paper estimates the economic growth effect of EUROMED FTA both for the whole group, and the individual countries via using Common Correlated Effect Model.

3. THEORETICAL MODEL OF ECONOMIC GROWTH

From the 1950s up until the mid-1980s, the literature concerned with long run growth was dominated by the Neoclassical Growth Model- a la Solow (Solow, 1956). According to this theory, the economy - due to diminishing returns on investment in physical capital, converges towards a steady state conditioned upon the behavioral and technological parameters in the model.

Neoclassical Growth Model shows that, with the assumption that technological level is the same for all countries and does not change the long-term reel growth rate of developing and developed economies come closer to the value of the same long-term period and that rate is "zero". This hypothesis is called *convergence hypothesis* and the process during which developing countries catch up with the economies of the developed countries is called *convergence process*.

Here, the basic assumptions that causes the differentiation of the growth rates of the countries on different development levels, concern the factor equipment of countries are different and that the marginal productivity of the capital is decreasing.

Theoretical model of convergence can be expanded with using the Solow (1956) model[1]. With the assumption of exogenous technology, main growth equation is:

(1)
$$\dot{K} = s \cdot K^{\alpha} \cdot (A \cdot L)^{1-\alpha} - \delta \cdot K$$

when   identify   it   with   per   capita   terms:

(2)
$$\dot{\tilde{k}} = s \cdot \tilde{k}^{\alpha} - (n + \delta + x) \cdot \tilde{k}$$

At the equation $\tilde{y} = \tilde{k}^{\alpha}$. Taking the log-differential of production function, it is found $\hat{\tilde{y}} = \alpha \cdot \hat{\tilde{k}}$ and ($\hat{\tilde{y}} = \dfrac{\dot{\tilde{y}}}{\tilde{y}}$ and $\hat{\tilde{k}} = \dfrac{\dot{\tilde{k}}}{\tilde{k}}$). Main growth equation can be written with using $\tilde{y}$ ($\tilde{y} = \tilde{k}^{\alpha} \Rightarrow \tilde{k} = \tilde{y}^{\frac{1}{\alpha}}$):

$$\frac{\dot{\tilde{k}}}{\tilde{k}} = s \cdot \tilde{y}^{\alpha-1} - (n + \delta + x) \Rightarrow$$

$$\frac{1}{\alpha}\frac{\dot{\tilde{y}}}{\tilde{y}} = s \cdot \tilde{y}^{\frac{\alpha-1}{\alpha}} - (n + \delta + x) \Rightarrow$$

$$\frac{\dot{\tilde{y}}}{\tilde{y}} = \alpha\left[s \cdot \tilde{y}^{\frac{\alpha-1}{\alpha}} - (n + \delta + x) \right] \Rightarrow$$

$$\frac{dLn[\tilde{y}]}{dt} = \alpha\left[s \cdot e^{\left(\frac{\alpha-1}{\alpha}\right)Ln[\tilde{y}]} - (n + \delta + x) \right] \equiv \phi(Ln[\tilde{y}])$$

(3)

$$\frac{dLn[\tilde{y}]}{dt} = \hat{\tilde{y}} \text{ and } e^{\left(\frac{\alpha-1}{\alpha}\right)Ln[\tilde{y}]} = \tilde{y}^{\frac{\alpha-1}{\alpha}}.$$

This differential equation is not linear, so it should be linear. Using Taylor theorem:

(4)
$$\frac{dLn[\tilde{y}]}{dt} \approx \phi(Ln[\tilde{y}_{ss}]) + \phi'(Ln[\tilde{y}_{ss}]) \left[Ln[\tilde{y}] - Ln[\tilde{y}_{ss}]\right]$$

Steady state value for Cobb-Douglas production function is $\tilde{y}_{ss} = \left(\dfrac{s}{n+\delta+x} \right)^{\frac{\alpha}{1-\alpha}}$:

$$\phi\left(Ln\left[\tilde{y}_{ss}\right]\right) = \alpha\left[s \cdot e^{\left(\frac{\alpha-1}{\alpha}\right)\left(\frac{\alpha}{\alpha-1}\right)Ln\left[\frac{s}{n+\delta+x}\right]} - (n+\delta+x)\right] \Rightarrow$$

$$\phi\left(Ln\left[\tilde{y}_{ss}\right]\right) = \alpha\left[s \cdot e^{-Ln\left[\frac{s}{n+\delta+x}\right]} - (n+\delta+x)\right] \Rightarrow$$

$$\phi\left(Ln\left[\tilde{y}_{ss}\right]\right) = \alpha\left[s \cdot \left(\frac{n+\delta+x}{s}\right) - (n+\delta+x)\right] \Rightarrow$$

(5) $$\phi\left(Ln\left[\tilde{y}_{ss}\right]\right) = 0$$

Then $\phi'\left(Ln\left[\tilde{y}_{ss}\right]\right)$ is determined:

$$\phi'\left(Ln\left[\tilde{y}\right]\right) = \alpha \cdot \left[s \cdot \left(\frac{\alpha-1}{\alpha}\right) \cdot e^{\left(\frac{\alpha-1}{\alpha}\right)Ln\left[\tilde{y}\right]}\right] \Rightarrow$$

$$\phi'\left(Ln\left[\tilde{y}\right]\right) = \alpha \cdot \left[s \cdot \left(\frac{\alpha-1}{\alpha}\right) \cdot \tilde{y}^{\frac{\alpha-1}{\alpha}}\right]$$

(6)

for steady state:

$$\phi'\left(Ln\left[\tilde{y}_{ss}\right]\right) = \alpha \cdot \left[s \cdot \left(\frac{\alpha-1}{\alpha}\right) \cdot \left(\left(\frac{s}{n+\delta+x}\right)^{\frac{\alpha}{\alpha-1}}\right)^{\left(\frac{\alpha-1}{\alpha}\right)}\right] \Rightarrow$$

$$\phi'\left(Ln\left[\tilde{y}_{ss}\right]\right) = \alpha \cdot \left[s \cdot \left(\frac{\alpha-1}{\alpha}\right) \cdot \left(\frac{n+\delta+x}{s}\right)\right] \Rightarrow$$

(7)
$$\phi'\left(Ln\left[\tilde{y}_{ss}\right]\right) = -(1-\alpha)\cdot(n+\delta+x)$$

When the values which are found before are used at the equation (8):

(8)
$$\frac{dLn[\tilde{y}]}{dt} \approx -(1-\alpha)\cdot(n+\delta+x)\left[Ln[\tilde{y}] - Ln[\tilde{y}_{ss}]\right]$$

This equation is linear. When define $v = (1-\alpha)\cdot(n+\delta+x)$ and assume $Ln[\tilde{y}] < Ln[\tilde{y}_{ss}]$, economy converge to the steady state income. Following equation shows the convergence rate (CR):

(9)
$$CR = \frac{\dfrac{d\hat{\tilde{y}}}{dt}}{\dfrac{dLn[\tilde{y}]}{dt}} = \frac{d\hat{\tilde{y}}}{dLn[\tilde{y}]} \approx -v$$

$z = Ln[\tilde{y}]$, $b = v \cdot Ln[\tilde{y}_{ss}]$ and these are constant, so equation (8) is written:

(10)
$$\dot{z} = -v\cdot z + b$$

Two side of the equation multiply with $e^{v\cdot t}$:

$$\{\dot{z} + v\cdot z\}\cdot e^{v\cdot t} = b\cdot e^{v\cdot t} \Rightarrow$$

$$\dot{z}\cdot e^{v\cdot t} + v\cdot z\cdot e^{v\cdot t} = b\cdot e^{v\cdot t} \Rightarrow$$

$$\frac{d}{dt}\left[z\cdot e^{v\cdot t}\right] = b\cdot e^{v\cdot t} \Rightarrow$$

$$\int d\left[z\cdot e^{v\cdot t}\right] = \int b\cdot e^{v\cdot t}dt \Rightarrow$$

$$z\cdot e^{v\cdot t} = \frac{b}{v}\cdot e^{v\cdot t} + sbt \Rightarrow$$

$$z_t = \frac{b}{v} + sbt\cdot e^{-v\cdot t} \Rightarrow$$

$$Ln[\tilde{y}_t] = \frac{v\cdot Ln[\tilde{y}_{ss}]}{v} + sbt\cdot e^{-v\cdot t} \Rightarrow$$

(11)
$$Ln[\tilde{y}_t] = Ln[\tilde{y}_{ss}] + sbt\cdot e^{-v\cdot t}$$

for $t = 0$ equation becomes:

$$Ln[\tilde{y}_t] = Ln[\tilde{y}_{ss}] + [Ln[\tilde{y}_0] - Ln[\tilde{y}_{ss}]] \cdot e^{-v \cdot t} \Rightarrow$$

$$Ln[\tilde{y}_t] = Ln[\tilde{y}_0] \cdot e^{-v \cdot t} + (1 - e^{-v \cdot t}) \cdot Ln[\tilde{y}_{ss}] \Rightarrow$$

(12)

$$Ln[\tilde{y}_t] - Ln[\tilde{y}_0] = -(1 - e^{-v \cdot t}) \cdot Ln[\tilde{y}_0] + (1 - e^{-v \cdot t}) \cdot Ln[\tilde{y}_{ss}]$$

It should be defined with per capita terms:

$$Ln\left[\frac{Y_t}{A_t \cdot L_t}\right] - Ln\left[\frac{Y_0}{A_0 \cdot L_0}\right] = -(1 - e^{-v \cdot t}) \cdot Ln\left[\frac{Y_0}{A_0 \cdot L_0}\right] + (1 - e^{-v \cdot t}) \cdot Ln\left[\left(\frac{s}{n + \delta + x}\right)^{\frac{\alpha}{\alpha - 1}}\right] \Rightarrow$$

$$Ln\left[\frac{Y_t}{L_t}\right] - Ln\left[\frac{Y_0}{L_0}\right] - Ln[A_t] + Ln[A_0] = -(1 - e^{-v \cdot t}) \cdot Ln\left[\frac{Y_0}{L_0}\right] + (1 - e^{-v \cdot t}) \cdot Ln[A_0] +$$

$$(1 - e^{-v \cdot t}) \cdot Ln\left[\left(\frac{s}{n + \delta + x}\right)^{\frac{\alpha}{\alpha - 1}}\right] \Rightarrow$$

$$A_t = A_0 \cdot e^{x \cdot t}$$

$$Ln\left[\frac{Y_t}{L_t}\right] - Ln\left[\frac{Y_0}{L_0}\right] - x \cdot t = -(1 - e^{-v \cdot t}) \cdot Ln\left[\frac{Y_0}{L_0}\right] + (1 - e^{-v \cdot t}) \cdot Ln[A_0] +$$

$$(1 - e^{-v \cdot t}) \cdot Ln\left[\left(\frac{s}{n + \delta + x}\right)^{\frac{\alpha}{\alpha - 1}}\right] \Rightarrow$$

$$Ln[y_t] - Ln[y_0] = x \cdot t - (1 - e^{-v \cdot t}) \cdot Ln[y_0] + (1 - e^{-v \cdot t}) \cdot Ln[A_0] +$$

$$(1 - e^{-v \cdot t}) \cdot Ln\left[\left(\frac{s}{n + \delta + x}\right)^{\frac{\alpha}{\alpha - 1}}\right] \Rightarrow$$

and

(13) $Ln[y_t] - Ln[y_0] = \beta_0 - \beta_1 \cdot Ln[y_0] + \beta_2 \cdot Ln[s] - \beta_2 \cdot Ln[n + \delta + x]$

(13) is convergence equation which is used at empirical studies. Left side of the equation shows the growth rate with taking into consideration of initial point. Right hand side shows the exogenous variables.

$\beta_0 = x \cdot t + (1 - e^{-v \cdot t}) \cdot Ln[A_0]$ has two constant variables:

$x \cdot t$: Total growth rate from the initial point

$(1 - e^{-v \cdot t}) \cdot Ln[A_0] \cdot \beta_1 = (1 - e^{-v \cdot t})$: Initial per capita income. The coefficient of this is negative, and it is consistent with the convergence theory.

$\beta_2 = \dfrac{\alpha}{1 - \alpha} \cdot (1 - e^{-v \cdot t})$ shows the investment rate's growth effect, and it is expected to

be positive.   (14) $y_{ss} = A_0 \cdot \left(\dfrac{s}{n + \delta + x} \right)^{\frac{\alpha}{1-\alpha}} \cdot e^{x \cdot t}$

taking the logarithm of both sides:

(15)

$$Ln[y_t] = Ln[A_0] + x \cdot t + \frac{\alpha}{1 - \alpha} \cdot Ln[s] - \frac{\alpha}{1 - \alpha} \cdot Ln[n + \delta + x]$$

$A = A(V)$

V defines variables which are related with the policy. These variables are final consumption expenditure of government and export openness.

4. ECONOMETRIC METHODOLOGY AND EMPIRICAL FINDINGS

In this paper panel data method is employed. When we use panel data technique, we will face with the same problems as time series. It has to be examined whether variables include unit root or not. Before applying unit root tests for the series, heterogeneity and cross sectional dependence tests are used. We found that all series have cross sectional dependence. For that reason, second generation panel unit root and panel cointegration tests were used. For all tests, the period covered is 1996-2011, and panel data set is a balanced one, and we used Gauss codes for econometric tests. The data was obtained from World Economic Outlook Database.

Equation (16) shows unconditional convergence, and (17) shows conditional convergence.

(16) $Y_{i,t} - Y_{i,t0} = a + b_0 Y_{i,t0} + v_{it}$

(17) $Y_{i,t} - Y_{i,t0} = a + b_0 Y_{i,t0} + b_1 TRADE_{it} + b_2 GC_{it} + b_3 D + v_{it}$

T : number of years in the period from 1996 to 2011

i : 1, 2, ..., and 27 EU countries, Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Tunisia and Turkey

a , b_0, b_1, b_2 are the parameters to be estimated

v_{it} : residual term

D: trend dummy

$Y_{i,t} - Y_{i,t0}$ is the natural logarithm of real GDP per capita in country *I* at time *t*, relative to the initial GDP per capita. This specification investigates convergence between countries.

The model (17) considers three other explanatory variables; these are open trade policy, government consumption and integration's effect. We assume that trade could be the engine of economic growth; although some argue that causality could be bi-directional (Ghatak and Wheatley-Price, 1996). Trade is also important, because a higher degree of integration with the world market means higher level of technology. Some researchers believe that limitations in trade slow down the speed of growth[2]. It is expected that coefficient of government consumption will be negative[3]. Trend dummy shows the economic growth effect of integration.

In this part, we test whether theoretically suggested economic integration effects economic growth positively for the countries at issue. In the first step, we run heterogeneity test. Pesaran and Yamagata (2008) developed Delta test to examine the heterogeneity between cross section units. Under the assumption of fixed effect and heterogeneous slopes (Pesaran and Yamagata, 2008: 52):

(18)
$$y_{it} = \alpha_i \tau_T + X_i \beta_i + \varepsilon_{1,i}, \qquad \forall i = 1, 2, ..., N$$

where τ_T indicates $T \times 1$ vector of ones, β_i is $k \times 1$ vector of unknown slope coefficient, $y_i = (y_{i1}, ..., y_{iT})'$, $x_i = (x_{i1}, ..., x_{iT})'$, and $\varepsilon_{1,i} = (\varepsilon_{1,i1}, ..., \varepsilon_{1,iT})'$. According to the Delta test, null and alternative hypotheses are as follows:

(19)
$$H_0 : \beta_i = \beta$$
$$H_1 : \beta_i \neq \beta_j$$

---

[2] Baldwin (1989); Edwards (1992); Dolar (1992); Levine and Renelt(1992); Frankel and Romer (1996); Baldwin and Seghezza (1996); Henrekson et al. (1997); Wacziarg (1998); Vamvakidis (1998); Frankel and Romer (1999); Bhagwati and Srinivasan (2002); Nguyen and Ezaki (2005) and Borata and Kutan (2008).

[3] Barro and Sala-i-Martin (1995); Fölser and Henrekson (2001) and Borata and Kutan (2008).

If null hypothesis is failed to reject, then series are homogeneous. Otherwise, at least one series is different from the others and hence the series are heterogeneous. Our Delta test results are shown in table 1 below.

Table 1: Delta Test Results

Test	Test Statistics	Probability
$\tilde{\Delta}$	3.942***	0,001
$\tilde{\Delta}_{adj}$	4.962***	0,001

Note: *** indicates that the coefficient is significant at 1%.

As H_0 is rejected, slope coefficients in the cointegration equation are heterogeneous for all income groups. It is important to determine the Cross-section dependence (CD) before implementing unit root tests. To this end, we used CD test of Pesaran (2004). Standard panel data model (Pesaran, 2004: 3):

(20)
$$y_{it} = \alpha_i + \beta_i' x_{it} + \varepsilon_{2,it},$$
for $i = 1,2,...,N$

and $t = 1,2,...,T$

where i indicates the cross section dimension, t the time series dimension, x_{it} is $k \times 1$ vector of observed time-varying regressors, α_i are individual intercepts, β_i are slope coefficients. To test cross section dependence, test statistics is computed as follows (Pesaran, 2004: 5):

(21)
$$CD = \sqrt{\frac{2T}{N(N-1)}} \left(\sum_{i=1}^{N-1} \sum_{j=i+1}^{N} \hat{\rho}_{ij} \right)$$

CD statistic of Pesaran has mean zero for fixed values of T and N, where N indicates cross section dimension, T is time dimension of panel, $\hat{\rho}_{ij}$ represents the sample estimate of the cross sectional correlations among residuals. The hypothesis for the computed test statistics are:

(22)
$$H_0 : \rho_{ij} = \rho_{ji} = cor(\varepsilon_{2,it}, \varepsilon_{2,jt}) = 0$$
$$H_1 : \rho_{ij} = \rho_{ji} \neq 0$$

The CD test results are shown in table 2 below.

Table 2: Cross Sectional Dependence Test (CD_{LM} Test)

Variable	Test Statistics	Probability
Y	30.763***	0.0001
trade	17.311***	0.0001
Gc	12.963***	0.0001

Note: *** indicates that the coefficient is significant at 1%.

There is a cross sectional dependence between series in the case of the null hypothesis is rejected. Therefore, it requires to use the unit root tests which take into consideration of the cross section dependence. Otherwise, the results will be biased. The appropriate unit root test in that case is Cross-Sectionally Augmented *Dickey-Fuller (CADF)* test of Pesaran (2007). In the CADF test, standard Dickey Fuller regressions with the cross-section averages of lagged levels and first-differences of the individual series are augmented, and then standard panel unit root tests are based on the simple averages of the individual cross-sectionally augmented ADF statistics (Pesaran 2007: 265). Pesaran's asymptotic results are obtained both for the individual CADF statistics[4] and their simple averages, which are called Cross-Sectionally Augmented Im, Pesaran, Shin (CIPS) Test. The null and alternative hypotheses of the CADF test are shown below:

(23)

$$H_0 : \beta_j = 0$$
$$H_1 : \beta_j < 0 \quad j = 1,2,...,N_1; \quad \beta_j = 0, \quad j = N_1 + 1, \ N_1 + 2,...,N$$

where N indicates number of cross sections. CADF regression is shown below (Pesaran, 2007: 269):

(24) $$\Delta y_{it} = a_i + b_i y_{i,t-1} + c_i \bar{y}_{t-1} + d_i \Delta \bar{y}_t + e_{1,it}$$

where $\Delta y_{it} = y_{it} - y_{i,t-1}$; $y_{i,t-1}$ is the first lag of y_{it} ; $\Delta \bar{y}_t$ is cross-section mean of Δy_t and $e_{1,it}$ is residuals. CIPS test is based on Pesaran (2007: 276):

(25) $$CIPS(N,T) = N^{-1} \sum_{i=1}^{N} t_i(N,T)$$

---

[4] CADF test results show that series for individual countries have unit root problem. Given that our methodology ignores whether series are I(0) or I(1), we refrained to present these results. They are available from the authors on demand.

where $t_i(N,T)$ is the CADF statistics for i[th] cross-section unit given by the t-ratio of the coefficient of $y_{i,t-1}$ in the CADF regression defined by (25). CIPS test gives only one value. CIPS test results are shown in table 3 below.

Table 3: CIPS Test Results

Variable	Test Statistics
Y	-2.4554**
trade	-3.008***
Gc	-1.933

Note: *** and ** indicates that the coefficient is significant at 1% and 5% respectively.

According to Table 3, null hypothesis of non-stationary is rejected for income and trade series at 1% and 5% level of significance except government consumption series. Given the cross section dependence of our series, we run/employ second generation panel cointegration tests. Westerlund (2008) proposed the Durbin–H panel and group cointegration test, which gives more powerful results than any other panel cointegration test if there exists cross section dependence. The following equation is proposed by Westerlund (2007: 715):

$$(26) \qquad \Delta y_{it} = \delta_i' d_t + \alpha_i(y_{it-1} - \beta_i' x_{it-1}) + \sum_{j=1}^{pt} \alpha_{ij} \Delta y_{it-j} + e_{2,it}$$

where α_i is error correction term, d_t shows deterministic trend, $e_{2,it}$ is residuals. Durbin-H group and Durbin-H panel statistics are computed as follows (Westerlund, 2008: 203):

$$(27) \qquad DH_g = \hat{S}_i(\tilde{\hat{\phi}}_i + \hat{\phi}_i)^2 \sum_{t=2}^{T} \hat{e}_{it-1}^2$$

$$(28)$$

$$DH_p = \hat{S}_n(\tilde{\hat{\phi}} + \hat{\phi})^2 \sum_{i=1}^{n} \sum_{t=2}^{T} \hat{e}_{it-1}^2$$

$\hat{S}_i$ and $\hat{S}_n$ are the variance ratios, and $\hat{e}_{it-1}$ is a consistent estimate of e_{it-1}. Panel statistics, DH_p is constructed by summing the n individual terms before multiplying them together. Group mean statistics, DH_g, is constructed by first multiplying the terms and then summing them up. The distinction lies in the formulation of the alternative hypothesis. The null and alternative hypotheses of Durbin–H panel and group cointegration tests are as follows:

$$H_0 : \phi_i = 1 \quad for \ all \ \ i = 1,...,n$$

(29)
$$H_1^p : \phi_i = \phi \ \ and \ \ \phi < 1 \quad for \ all \ \ i$$

$$H_1^g : \phi_i < 1 \quad for \ at \ least \ some \ i$$

The Durbin-H panel cointegration results are compared with the critical value, 1.645. Our results indicate that there is cointegration for all income groups. Table 4 represents Durbin-H panel and group cointegration test results.

Table 4: Durbin-H Panel Cointegration Test for Unconditional Convergence Model

	Test Statistics	Probability
Durbin-H group	25.577***	0.0001
Durbin-H panel	25.564***	0.0001

Note: *** indicates that the coefficient is significant at 1%.

To test for the null hypothesis of no-cointegration in the panel, Durbin-H group and panel cointegration tests are employed. Test results strongly support cointegration relationship. It means that deviations from equilibrium value of the variable in the short run are corrected in the long run. Table 5 represents Durbin-H (2008) group and panel cointegration test results for conditional convergence model.

Table 5: Durbin-H Panel Cointegration Test for Conditional Convergence Model

	Test Statistics	Probability
Durbin-H group	18.264***	0.0001
Durbin-H panel	10.937***	0.0001

Note: *** indicates that the coefficient is significant at 1%.

Test results show that there is a cointegration relationship. It means that deviations from equilibrium value of the variable in the short run are corrected in the long run. Given that there is cross-sectional dependence in our series, we use Common Correlated Effects Mean Group (CCE-MG) estimators developed by Pesaran (2006). Next, we estimate the long-run model. For the ith cross section unit at time t for $i = 1,...,N$ and $t = 1,...,T$, the linear heterogeneous panel data model is shown below (Pesaran, 2006: 971):

(30)
$$y_{it} = \alpha_i^{'} d_t + \beta_i^{'} x_{it} + e_{3,it}$$

In (30), d_t is a $n \times 1$ vector of observed common effects which includes deterministic components such as intercepts and seasonal dummies, x_{it} is a $k \times 1$ vector of observed individual-specific regressors on i^{th} cross section unit at time t, and errors $e_{3,it}$ are:

(31)
$$e_{3,it} = \gamma_i' f_t + \varepsilon_{3,it}$$

In (31), f_t is the vector of observed common effects which includes deterministic components such as intercepts and seasonal dummies, $\varepsilon_{3,it}$ are the individual specific errors. Below, we present CCE-MG and fixed effect estimates.

Table 6: CCE-MG Estimates for Unconditional Convergence Model

	Coefficient	Se(NW)	t-statistics
ly_0	-0.2969	0.0491	-6.0425

Table 6 shows CCE-MG estimation results of unconditional convergence model. The investigation of unconditional convergence requires a restrictive assumption that there is no difference in preference, technology and steady state across countries. There is an absolute unconditional convergence observed because the coefficient of the initial level of real GDP per capita is negative and statistically significant. Countries with lower initial levels of relative GDP per capita tend to grow 0.29 per cent faster than rich ones.

The half life condition is given by $e^{\lambda t} = 1/2 \Rightarrow t = \ln(2)/\lambda$. It shows that how an economy fills the gap between others. Table 6 shows that countries with lower initial levels of relative GDP per capita will move halfway in 29 years. Implied λ is 0.023. It implies that 2.3 percent of the gap of initial levels of real relative GDP per capita between the rich and the poor vanishes in a year if their steady states are identical. Table 7 shows CCE MG estimates for conditional convergence model.

Table 7: CCE MG Estimates for Conditional Convergence Model

	Coefficient	Se(NW)	t-statistics
$\ln y_0$	-0.55067	0.063906	-8.61694
Trade	0.000552	0.000557	2.160216
GC	-0.00753	0.002479	-3.03768
D	0.004468	0.002645	1.689319

CCE-MG estimates show that there is a strong relationship. An absolute conditional convergence is observed because the coefficient on the initial level of real GDP per capita is negative and statistically significant. Countries with lower initial levels of relative GDP per capita tend to grow 0.55 percent faster than rich ones. According to the halflife formula of conditional convergence model, countries with lower initial levels of relative GDP per capita will halfway in 10 years. And implied λ is 0.066.

It implies that 6.6 percent of the gap of initial levels of real relative GDP per capita between the rich and the poor vanishes in a year if their steady states are identical. This is faster than the unconditional convergence model. It means that the explanatory variables at the conditional convergence model have good explanatory power for GDP per capita convergence. And the other explanatory variables have expected signs. These means that trade openness effects economic growth positively, government consumption effects negatively, and integration dummy effects positively as theory points out. The methodology also allows identifying individual effects of independent variables on the dependent variable as well[5].

The methodology also allows us to identify individual effects of independent variables on the dependent variable as well. When we look at the tables at the Appendix 1 and 2, we see country-specific unconditional and conditional convergence models. Due to unconditional convergence model,

Bulgaria, Malta and Slovenia have fastest; Slovak Republic, Latvia and Hungary have lowest unconditional convergence speed. Another table shows country-specific conditional convergence results. From the table we see that Egypt, Lebanon, Israel and Algeria have fastest; Italy, Greece and Lithuania have lowest conditional convergence speed.

5. CONCLUSION

EUROMED FTA promotes economic integration and democratic reform across 16 neighbors to the EU's south in North Africa and the Middle East. The aim of EUROMED is to remove the trade barriers and deepen South-South economic integration. EUROMED aims to increase the export volumes of Middle East and North Africa countries to the EU. This paper analyzed the economic growth effect of EUROMED with using second generation panel unit root and panel cointegration tests. According to the CCE-MG estimation results there is a positive economic growth effect of EUROMED. And also, it is seen that conditional convergence speed is higher than unconditional convergence speed. It means that additional explanatory variables explain the economic growth effect strongly.

This paper gives country-specific conditional and unconditional convergence results at the long-run model via using Common Correlated Effect Model. This contribution provides crucial information about the European Union countries and Middle East and North Africa countries. These tests enable to see which countries have high, and which countries have low unconditional and conditional convergence. And also we can see the country-specific effects of explanatory variables, especially for integration effect.

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[5] You can see the individual effects of independent variables at the annex.

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Appendix 1: CCE Estimation Results for Each Country (Unconditional Conv. Model)

Countries	Y	Lambda	Half Life
Bulgaria	-0.585	0.0586	11.82204
Cyprus	-0.326	0.0263	26.35372
Czech Republic	-0.195	0.0145	47.93262
Estonia	-0.299	0.0237	29.26751
Hungary	-0.129	0.0092	75.28028
Latvia	-0.092	0.0064	107.7309
Lithuania	-0.369	0.0307	22.58056
Malta	-0.402	0.0343	20.22156
Poland	-0.163	0.0119	58.43386
Romania	-0.224	0.0169	40.99801
Slovak Republic	-0.027	0.0018	379.8594
Slovenia	-0.36	0.0298	23.29713
Belgium	-0.288	0.0226	30.60907
France	-0.152	0.0110	63.06129
Netherlands	-0.269	0.0209	33.18168
Luxembourg	-0.143	0.0103	67.37549

Appendix 2: CCE Estimation Results for Each Country (Conditional Convergence Model)

Countries	y	TRADE	GC	D	Lambda	Half Life
Bulgaria	-0.577	0.000	-0.002	-0.001	0.0574	12.08439
Cyprus	-1.245	0.009	-0.011	-0.009	-	-
Czech Republic	-0.381	-0.002	0.001	0.005	0.0320	21.67666
Estonia	-0.564	0.000	-0.027	-0.005	0.0553	12.52505
Hungary	-0.518	0.000	-0.007	0.016	0.0487	14.24644
Latvia	-0.27	0.002	-0.018	0.001	0.0210	33.03735
Lithuania	-0.182	0.007	0.003	-0.005	0.0134	51.75497
Malta	-0.657	0.003	-0.024	0.002	0.0713	9.716791
Poland	-0.587	0.001	-0.025	-0.009	0.0590	11.75745
Romania	-1.075	0.001	0.025	-0.001	-	-
Slovak Republic	-0.288	-0.006	0.024	-0.007	0.0226	30.60907
Slovenia	-1.473	-0.003	-0.014	0.003	-	-
Belgium	-0.762	0.001	-0.014	0.015	0.0957	7.242995
France	-0.286	0.005	-0.008	0.011	0.0225	30.86394
Netherlands	-0.277	0.006	0.002	-0.002	0.0216	32.05591
Luxembourg	-0.599	0.002	0.009	0.036	0.0609	11.37807
Italy	-0.093	-0.002	-0.002	0.017	0.0065	106.5148
Denmark	-0.247	0.000	-0.014	0.017	0.0189	36.64988
Ireland	-0.301	-0.001	-0.019	0.03	0.0239	29.034
United Kingdom	-0.501	-0.004	0.007	0.01	0.0463	14.9568
Greece	-0.103	0.002	0.002	-0.023	0.0072	95.651
Spain	-0.445	0.001	-0.017	0.016	0.0393	17.65869
Portugal	0.206	0.004	-0.007	0.01	-0.0125	-55.5083
Austria	-0.687	0.001	0.017	0.016	0.0774	8.951133
Finland	-0.731	-0.001	-0.017	0.002	0.0875	7.918401
Sweden	-0.258	0.005	0.001	0.034	0.0199	34.84248
Turkey	-0.657	-0.004	-0.005	-0.048	0.0713	9.716791
Germany	-0.102	0.003	-0.036	0.025	0.0072	96.64161
Algeria	-0.686	0.000	-0.003	0	0.0772	8.975782
Egypt	-0.922	-0.004	-0.013	0.001	0.1701	4.075664
Israel	-0.771	-0.002	-0.021	0.001	0.0983	7.053577
Jordan	-0.501	0.001	0	0.003	0.0463	14.9568
Lebanon	-0.794	-0.001	-0.006	0.001	0.1053	6.581015
Morocco	-1.524	0.001	-0.007	-0.003	-	-
Tunisia	-0.417	-0.004	-0.04	-0.001	0.0360	19.2695

EFFECTS OF DEPOSIT INSURANCE SYSTEM ON BANKS' RISK TAKING INCENTIVES IN TURKEY[*]

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ABSTRACT

Deposit insurance is an insurance system that guarantees bank deposits of people in case of bank failure or a run on the bank. Deposit insurance in Turkey is handled by Savings Deposit Fund Insurance and according to the latest regulations compensation limit covers a maximum of 100,000 TL per depositor per member institution. The system is adopted in most countries and has various advantages for both individuals and banks. However academic debates commonly focus on whether this system encourages banks to take excessive risks. In this context the purpose of this study is to analyze the link between deposit insurance and banks' risk taking. For this purpose, a panel regression analysis is applied to the ratio of deposits under insurance to total deposits and basic risk measures of banks operating in Turkey during 2002Q4-2013Q1. Results suggest that, higher insured deposit ratios are related to higher credit risk and interest rate risk but lower liquidity risk and overall default risk.

1. INTRODUCTION

Banking sector is special with its nature of financing long term investments with relatively short term deposits. This feature makes banks vulnerable to various types of risks both from market and from themselves. One of the threats towards banking system is the sudden withdrawals of large amount of deposits and this is known as bank runs. According to Diamond and Dybvig (1983), during a bank run, depositors scour about withdrawing their deposits since they expect the bank to fail. Following this sudden withdrawals, banks can be forced to liquidate their assets at a loss and fail. With many bank failures, monetary system may be disrupted and production can be reduced (Diamond, Dybvig, 1983:401).

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[*] This study is revised and expanded from the paper entitled as "The Link Between Deposit Insurance and Banks' Risk Taking" which is presented at International Symposium of Sustainable Development, ISSD 2012, in Bosnia Herzegovina.

This brings the need of applying some regulatory techniques to maintain "safety and soundness" of banks. Deposit insurance system is used as a regulatory tool in most countries for many years. The aim of such a system is to provide banking sector's stability preventing banks from being subject to runs. Carapella and DiGiorgio (2004:77) define this system as:

> "…*an instrument through which the banking system guarantees that funds deposited by the public in a bank are independent of solvency and liquidity conditions of the bank itself, so that depositors may be sure of being reimbursed at any time*".

Deposit guarantees are designed to protect small and usually uninformed depositors (Silva, 2008:28) from losses depending on bank defaults, while protecting banking system's stability (Aydın, Başar, et al., 2006:246). Thus, it reduces the likelihood of bank panics and protects banks from facing the problem of excessive and unexpected deposit withdrawal (Şıklar: 2004:243). With strong institutions and proper safeguards, explicit deposit insurance can reduce or even stop bank runs (McCoy, 2006:1).

Deposit insurance system has various advantages for both depositors and banks. However academic debates commonly focus on whether this system is a source of moral hazard which reduces incentives of depositors to monitor their banks while encourages banks to take excessive risks (Silva, 2008; Beck, 2008:8; Boyd, De Nicola, 2005:1330; Bartholdy, Boyle et al., 2003:701; Bossone, 2000; Wheelock, Wilson, 1994:57) knowing that they are underwritten by the insurance scheme (The Economist: 2013). When explicit deposit insurance is not done carefully, it can fuel bank crises by giving banks perverse incentives to take unnecessary risks (McCoy, 2006:1).

Deposit insurance schemes were introduced in 1930s as a reaction to the effects of Great Depression on banking systems. In Turkey, the system is first implemented in 1933 and taken its final form with regulations in February 2013. Deposit insurance in Turkey is handled by Savings Deposit Fund Insurance and after the latest regulations compensation limit covers a maximum of 100,000 TL (50,000 TL during July 2004-February 2013, full coverage during July 2003-July 2004) per depositor per member institution. From this point of view, the purpose of this study is to investigate whether the proportion of insured deposits affects the risk taking incentives of individual banks. According to our knowledge, this is the first study which analysis the bank level effects of deposit insurance system in Turkey. Originality of the study also depends on the deposit insurance variable used in the analysis. Unlike other studies, deposit insurance variable is measured as insured deposits to total deposits.

The rest of this paper is organized as follows: Section 2 looks at the related literature. In Section 3, I introduce data and methodology used in the empirical analysis. This section also presents the empirical findings. Finally in Section 4, I conclude.

2. LITERATURE REVIEW

Demirgüç-Kunt and Detragiache (1999) tested the effect of deposit insurance on bank stability. Using the data of 61 countries during 1980-1997, the study found that explicit deposit insurance tends to be detrimental to bank stability.

Ninimaki (2000) analyzed the joint effect of competition and deposit insurance on banks' risk taking when the riskiness of banks can not be observed by depositors. According to the results, if the bank is monopoly or banks compete only in the loan market, deposit insurance has no effect on risk taking. But introduction of deposit insurance triggers risk taking if there is competition in deposit market.

Leaven (2002) calculated the annual implicit cost of deposit insurance and related it with ownership, size and credit growth of banks. Credit growth demonstrates banks' risk taking behavior because according to the author, banks often take risks in the form of excessive credit growth. The study indicates that high costs of deposit insurance is related to the concentrated private ownership, affiliation with a business group, small size, high credit growth, low GDP per capita, high inflation, poor quality and enforcement of laws and low penetration of foreign banks. Results support the view that there is positive relationship between deposit insurance and banks' moral hazard. The author also suggests that as a proxy of bank risk, cost of deposit insurance can be used in prediction of bank failures.

Bartholdy, Boyle et al. (2003) used data from 13 countries to investigate the relationship between deposit insurance and deposit risk premiums. Results suggest that insured deposits have a lower risk premium compared to the uninsured deposits. Another result of the study is that relationship between the risk premium and the maximum dollar value of insurance coverage is non-linear that means moral hazard incentives are recognized and priced by investors.

Gueyie and Lai (2003) compared the risk taking behaviors of banks in Canada before and after the implementation of deposit insurance system in 1967. They found that total risk, market risk, asset risk and residual risk were higher after the introduction of deposit insurance while interest-rate risk decreased after 1967.

Gropp and Vesala (2004) investigated the impact of deposit insurance on EU banks' risk taking during 1990s. The results suggest that the introduction of explicit deposit insurance system may significantly reduce risk taking. The authors also found some evidence that explicit deposit insurance might be a useful way to limit the safety net, increase market monitoring of banks and reduce moral hazard.

Gonzalez (2005) used data of 251 banks in 36 countries over the 1995-1999 period and investigated the effects of bank charter value (measured as Tobin's Q) and the presence of deposit insurance in a country on two kinds of bank risks (credit risk and overall risk). It is found that deposit insurance encourages banks to engage in risk-shifting, and that the quality of contracting environment in a country reduces risk-shifting incentives created by deposit insurance.

Wu and Chi (2006) aimed to find out the relationship between competition and risk taking. They found that this relationship depends on the interactions of market structure between loan and deposit markets, deposit insurance and depositors' risk aversion.

Focusing on the effects of deposit insurance, the results suggest that with full deposit insurance coverage an increase in competition for deposit will trigger moral hazard problem while an inverse impact occurs under competition for loan. If the deposit insurance system is not introduced, then the risk taking behaviors of banks depend on depositor's risk internalization.

Pennacchi (2006), developing a model considering deposit insurance and its effect on banks' choice of risk, suggests that actuarially fair premiums are correct assessments for insuring independent risks, but create moral hazard when assessed to insure systematic risks. According to the author, actuarially fair premiums for deposit insurance and risk-based capital standards may induce banks to increase their insurance subsidy by concentrating their lending and off-balance sheet activities in highly systematic risks.

Leaven and Levine (2008) assessed the relationships among risk taking of banks, ownership structures and national bank regulations including deposit insurance system. The results suggest that the impact of deposit insurance on banks' risk taking varies depending on the ownership structure of banks. If the bank is widely-held, deposit insurance has not have a significant impact on risk taking. On the other hand if bank has a majority owner, bank risk increases significantly with an increase in deposit insurance.

Silva (2008) has introduced deposit insurance in a model of information based bank runs. Results show that the net effect of deposit insurance on the equilibrium demand deposit contract is to raise its value and also the risk of runs. So deposit insurance induces moral hazard.

Ioannidou and Penas (2010) analyzed the effect of deposit insurance on the risk taking behavior of banks. Using the case of Bolivia, the authors compared the risk taking behavior of banks before and after the introduction of deposit insurance system in December 2001. Their main findings indicate that the introduction of deposit insurance system led to an increase in the probability of a bank originating a subprime loan. The results also suggest that banks do not increase collateral requirements or decrease loan maturity to compensate for the extra risk. Cross sectional analysis confirm the consequence that banks take more risk after the deposit insurance system is introduced.

Angkinand and Wihlborg (2010) analyzed whether deposit insurance systems and ownership structures of banks affect the degree of market discipline on banks' risk taking. They found that total effect of explicit deposit insurance coverage on risk taking is shown as a U-shaped curve. This indicates that risk taking is minimized at a positive and partial insurance coverage level where market discipline is at its strongest.

Ng, Lim et al. (2010) searched the relation between explicit deposit insurance and risk taking of banks in Malaysia during 2004-2007. The authors found that explicit deposit insurance had different effects on various risk factors. After the introduction of deposit insurance scheme, only two risks, interest rate risk and risk-weighted capital ratio deteriorated. Deposit rate, credit risk, liquidity risk and core capital ratio were not significantly changed for the post-introduction period.

DeLong and Saunders (2011) analyzed the effects of fixed-price deposit insurance introduced in 1993 on risk-taking of banks and on depositor discipline in the United States.

Results suggested that in the 3 years after the implementation of the system, banks generally became riskier. But banks better performed banks before the system reduced their risk level after deposit insurance. On the other hand, depositors were not concerned that banks became riskier.

Forsbaeck (2011) studied the effects of market discipline by creditors and ownership structure on banks' risk taking in the presence of deposit insurance.

Risk Proxies used in the study were Non-performing loans/equity and z-score. Author found a negative but relatively small effect of market discipline on risk. Results suggested that market discipline had a negative effect when risk is measured as non-performing loan ratio, whereas the effect on the Z-score is not statistically significant.

Abdullah and Ahmad (2012) aimed to search weather the risk taking behaviors of Islamic Banks in Malaysia differ before and after the deposit insurance implementation. Study covers 18 Islamic banks' yearly data of 2002-2010 periods. Results suggest that the Islamic banks have significantly higher operational risk (equity to asset ratio and overhead to asset ratio) after the introduction of deposit insurance. On the other hand, an effective design feature of deposit insurance system has deterred the Islamic banks from increasing their financial risk (non-performing financing to gross loans and non-performing financing to asset ratios) taking.

Yoon and Jun (2012) assessed the effects of the increase in deposit insurance coverage on banks' risk taking in the U.S. Three different types of risk were measured: systematic risk, unsystematic risk and total risk. It is found that the increase in deposit insurance coverage encourages banks to take more risk.

Le (2013) aimed to analyze the effects of deposit insurance on banks' risk taking particularly focusing on leverage. Using z-score as the proxy of risk, results obtained from the study suggested that after introduction of deposit insurance, a significant increase in bank risk of insolvency was observed.

Enkhbold and Otgonshar (2013) examined the effects of deposit insurance on banks' risk taking incentives. Using a panel data of 401 banks from 31 Asian countries over the period from 2000 to 2010, effects of three groups of independent variables (bank specific, country specific and deposit insurance variables) on three different types of risk (overall default risk, credit risk and liquidity risk) is examined. Their results suggest that implementation of deposit insurance helps to stabilize the banking system whereas encourages banks to undertake excessive risks.

Anginer et al. (2014) used a sample of 4109 publicly traded banks in 96 countries and examined the impact of deposit insurance on bank risk and systematic stability separately for the crisis period from 2007 to 2009 and former three-year-period leading up to the crisis. Using an ordinary least squares technique, they found that deposit insurance dummy is associated with lower systemic risk in crisis years but higher bank systemic risk in non-crisis years, and overall effect of deposit insurance over the entire sample period is negative. Risk is proxied by z-score and stock return volatility.

3. METHODOLOGY AND DATA

3.1. Data and Variables

Following the empirical literature, the main hypothesis of this study is that banks tend to take more excessive risks if their ratio of insured deposits to total deposits is higher. In order to investigate this assumption, I applied regression analysis to the balanced panel data set of 1092 observations including 26 banks and 42 quarters over 2002Q4-2013Q1 period.

In this study, I aimed to understand the effects of the insured deposits/total deposits ratio (as the proxy of explicit deposit insurance) on banks' risk appetite. For investigating banks' risk taking behaviors, following variables are selected:

Table 1: Definition of Variables

Variables	Acronyms	Definition
Dependent Variables (Risk Indicators)		
Credit Risk	NPL	Non-performing loans/total loans
Liquidity	LIQ	Liquid assets/short term liabilities
Interest Rate Risk Exposure	INT	Interest rate sensitivity of balance sheet and off-balance sheet position/total capital[1]
Overall Default Risk	Z-score	Equity to total assets plus net profit over average total assets (ROAA) divided by standard deviation of ROAA
Independent Variables		
Deposit insurance	DI	Insured deposits/total deposits
Capital Adequacy Ratio	CAR	Capital as a fraction of risk-weighted assets
Loan Growth	LOAN	Loans/Deposits
Scale	TA	Logarithm of total assets
Return over Assets	ROA	Net profit/Total assets

Whole data set is obtained from the web page of the Banks Association of Turkey (www.tbb.org.tr).

3.2. Methodology

To analyze the effects of deposit insurance on banks' risk taking, I used bank level data of 26 banks continually operated in Turkey during 2002Q4-2013Q1. Effects of insured-deposit-rates on several risk factors are analyzed separately. So the key independent variable is deposit insurance (DI). And I have established four regression models for testing the hypothesis.

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[1]Ratio of the difference between the liabilities subject to reprising within one year and the assets subject to reprising within one year plus off-balance sheet position to total capital

Model 1: Effect of Deposit Insurance on Credit Risk

$$NPL_{it} = \alpha_{it} + a_1 DI_{it} + a_2 CAR_{it} + a_3 LOAN_{it} + a_4 TA_{it} + a_5 ROA_{it} + e_{it}$$
(1)

I used non-performing loans to total loans ratio as the proxy of Credit Risk. In earlier studies which investigated the effects of deposit insurance on banks' credit risk, different results obtained. Ng et al (2010) used loan-loss provisions to total assets as the proxy of Credit Risk but they did not find a significant result basing on their analysis.

On the other hand, Forssbaeck (2011) interpreted non-performing loans to equity as the proxy of asset risk and found that the risk effect of market discipline (deposit insurance) is negative when risk is measured as the ratio of non-performing loans. Enkhbold and Otgonshar (2013) used non-performing loan to gross loans ratio to measure the credit risk and their results suggested that deposit insurance had a negative effect on credit risk. Gonzalez (2005) used non-performing loans to total loans ratio and found a positive relation with deposit insurance. Gropp and Vesala (2004) measured asset risk by using the share of problem loans in total assets. Their results suggest that introduction of explicit deposit insurance is associated with lower asset risk.

Model 2: Effect of Deposit Insurance on Liquidity Risk

$$LIQ_{it} = \alpha_{it} + b_1 DI_{it} + b_2 CAR_{it} + b_3 LOAN_{it} + b_4 TA_{it} + b_5 ROA_{it} + e_{it}$$
(2)

Liquidity is defined as the ratio of liquid assets to short-term liabilities. So when the value of the variable is higher, liquidity risk should be interpreted lower. Same variable is used in the studies of Ng et. al (2010) and Enkhbold and Otgonshar (2013). Ng et. al. (2010) suggested that liquidity risk did not increase after the introduction of deposit insurance. On the other hand, Enkhbold and Otgonshar (2013) found a positive relationship between deposit insurance and Liquidity variable which indicates a decrease in liquidity risk.

Model 3: Effect of Deposit Insurance on Interest Rate Risk

$$INT_{it} = \alpha_{it} + c_1 DI_{it} + c_2 CAR_{it} + c_3 LOAN_{it} + c_4 TA_{it} + c_5 ROA_{it} + e_{it}$$
(3)

Interest rate risk exposure of each bank is measured by the ratio of difference between the liabilities subject to reprising within one year and the assets subject to reprising within one year plus off-balance sheet position to total capital. Gueyie and Lai (2003) found that introduction of Deposit Insurance in Canada in 1967 decreased interest rate risk. Using the same variable, Ng et. al. (2010) found that the interest rate risk increased after the introduction of deposit insurance scheme in Malaysia.

Model 4: Effect of Deposit Insurance on Overall Default Risk

$$Zscore_{it} = \alpha_{it} + d_1 DI_{it} + d_2 CAR_{it} + d_3 LOAN_{it} + d_4 TA_{it} + d_5 ROA_{it} + e_{it}$$
(4)

Forssbaeck (2011), Le (2013), Enkhbold and Otgonshar (2013) and Anginer et. al. (2014) used Z-score as the proxy of overall default risk in their analysis. Anginer et. al. (2014) found that in crisis years, effect of deposit insurance on z-score is positive and in pre-crisis years it is negative. Le (2013) found that introduction of deposit insurance increases overall bank risk. Forssbaeck (2011) did not find a statistically significant effect of deposit insurance on z-score. Similar result is obtained by Enkhbold and Otgonshar (2013). Authors found a positive but an insignificant coefficient.

In all models;

i= refers to individual bank

t= refers to time (each quarter)

a, b, c, d= refers to the coefficients of variables

α= refers to the constant term

e= refers to the error term

Definitely, insured-deposits-rate is not the only variable which determines the risk levels of banks; but the others wouldn't be considered in the context of this study. In line with the empirical literature, four independent variables which are expected to be interacted with risk factors are selected. These variables are Capital Adequacy Ratio (Huang, 2005), Loan Growth (Gueyie and Lai, 2003; Ng et. al., 2010), Scale (Gueyie and Lai, 2003; Ioannidou and Penas, 2010; Forssbaek, 2011; Yoon and Jun, 2012; Enkhbold and Otgonshar, 2013; Anginer et. al., 2014), and Return over Assets (Ioannidou and Penas, 2010; Anginer et. al., 2014).

The data set includes both time series and cross section. Because of the double individual dimensions of the data, an Ordinary Least Squares (OLS) technique which is suitable to use for the econometrics of panel data is applied (Batisse, 2001).

One of the basic assumptions of Panel Data Regression models is the stationarity of variables. To analyze the variables for their stationarity I applied basic unit root tests (Levin, Lin & Chu; Im, Pesaran and Shin; ADF and PP). Table 2 demonstrates the test results and stationarity levels of each variable. Probabilities lower then %5 allows us to reject the null-hypothesis which states that the variable includes unit root. Data which doesn't include unit root can be accepted stationary.

Table 2: Unit Root Test Results

Variables	Levin, Lin & Chu		Im, Pesaran and Shin		ADF		PP		Stationarity
	Statis.	Prob.	Statis.	Prob.	Statis.	Prob.	Statis.	Prob.	
DI	-1.98155	0.0238	-3.89136	0.0000	90.3879	0.0008	127.987	0.0000	Level
INT	-3.11806	0.0009	-4.40047	0.0000	107.932	0.0000	146.446	0.0000	Level
LIQ	-66.6354	0.0000	-23.8855	0.0000	174.645	0.0000	272.264	0.0000	Level
NPL	-18.5117	0.0000	-11.6510	0.0000	143.119	0.0000	185.052	0.0000	Level
Z-score	-6.20775	0.0000	-6.27563	0.0000	135.119	0.0000	148.435	0.0000	Level
CAR	-5.44380	0.0000	-5.60425	0.0000	136.197	0.0000	165.627	0.0000	Level
LOAN	-4.17037	0.0000	-2.42461	0.0077	77.8872	0.0116	134.326	0.0000	Level
ROA	-9.01671	0.0000	-16.2121	0.0000	352.664	0.0000	603.592	0.0000	Level
TA	-11.4948	0.0000	-18.1253	0.0000	406.287	0.0000	699.734	0.0000	1st differ.

In prediction of panel regression models, two basic models are used according to the intercept, slope coefficients and error term: Fixed Effects Model and Random Effects Model. Hausman Test is applied to select between Fixed and Random Effect Models. The test quantifies the acceptability of Random Effects Model.

Probability values higher than %5 states that the null-hypothesis can not be rejected (Random Effects should be selected). Table 3 shows the results of Hausman Tests and regression model chosen for each model.

Table 3: Hausman Test Results

Correlated Random Effects - Hausman Test				
Models	**Chi-Sq Statistic**	**Chi-Sq d.f.**	**Prob.**	**Regression Model**
Model I	58.261171	5	0.0000	Fixed Effects
Model II	119.919081	5	0.0000	Fixed Effects
Model III	61.102597	5	0.0000	Fixed Effects
Model IV	6.713608	5	0.2428	Random Effects

3.3. Empirical Results

After deciding the model according to the Hausman Tests, four regression models are run to determine the effects of deposit insurance system and other independent variables on risk indicators. In Table 4, coefficients and significances of independent variables for each model can be seen. Findings of the regression analysis show that all risk factors are determined by different factors.

Table 4: Regression Results

Dependent Variable	DI		CAR		LOAN		ROA		TA	
	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.
NPL	0.124362	0.0000*	-0.001	0.4604	-0.004	0.0162*	0.229757	0.2074	-0.038	0.2400
LIQ	1.118272	0.0001*	-0.001	0.9250	-0.031	0.2096	1.313006	0.5941	-0.003	0.9944
INT	0.070594	0.0158*	-0.001	0.0269*	-0.004	0.1339	0.224895	0.3738	-0.197	0.0000*
Z-score	1.569527	0.1134**	0.001274	0.0397*	-0.098	0.2498	3.680432	0.6694	-6.417	0.0000*

*Significant at %5 significance level
**Significant at %15 significance level

3.3.1. Effects of Control Variables on Banks' Risks

Credit risk (NPL) is determined by Loan to Deposits ratio (LOAN) and the direction is negative. It means when banks are more effective at turning deposits to credits, non-performing loans get lower. This finding indicates that banks which are more efficient as intermediaries are also more successful in credit management.

Capital Adequacy Ratio (CAR) and Size (TA) are significant variables for both Interest Rate Risk (INT) and overall default risk (Z-score). Z-score refers to distance to insolvency so when its value is higher, risk level is lower. The result suggests that larger banks tend to take more risks in terms of insolvency.

The positive relation between size and risk appetite (negative relation between TA and Z-score) might be interpreted as larger banks in Turkey fall into trap of "too-big-to-fail[2]" status.

On the other hand, interest rate risk decreases by size which means larger banks enjoys the advantage of scale economies to compensate the maturity mismatches among their assets and liabilities.

High capital adequacy ratios are negatively related with both interest rate risk and overall default risk. However we can't say that these relations are strong because of its low coefficients. Still negative coefficients express that strong capital structure makes banks to avoid extra risk in order to satisfy their shareholders.

3.3.2. Effects of Deposit Insurance on Banks' Risks

Applying OLS technique to the panel data set, it is found that the effect of deposit insurance is highly significant for three dependent variables. These are credit risk, liquidity risk and interest rate risk. The directions of these effects are varied among risk factors.

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[2] "Too-big-to-fail": Failure of large companies (or banks) may have deteriorating effects on the sector they operate in and even on whole economy. So governments would prefer to subsidize these companies and save them from failure. This conservative attitude of governments encourages large companies pursuing high profits to take excessive risks.

Results suggest that the amount of insured deposits over total deposits has a positive and significant effect on Non-performing Loans (NPL) supporting the *"moral hazard"* argument. According to this argument, deposit insurance makes banks less sensitive in screening and monitoring of loans and this attitude increases the level of NPL. Interest rate sensitivity (INT) is also affected positively by DI. It means that banks become less careful in matching assets and liabilities according to the time remaining to reprising.

Contrary to our expectations, liquidity risk and overall default risk are related negatively with insured deposit rates. Anyone of our independent variables doesn't have a significant effect on Liquidity Risk except DI. Effect of DI on liquidity (LIQ) is significant and the direction of this effect is positive. We expected that when the insured deposit rate was higher, i.e. bank's responsibility was undertaken by government, bank's incentive to invest in liquid assets in order to meet its obligation would be destroyed. But positive coefficient indicates that this assumption is not prevalent for banks in Turkey which means banks with higher insured deposit ratio operate with higher liquidity ratio. Overall default risk (z-score) also has a positive coefficient but the result can be accepted significant only at %15 significance level. Z-score measures the distance of a bank from insolvency. Higher Z-score indicates that bank has a lower possibility of being insolvent. According to our results, when banks have higher insured deposits, they tend to reduce their overall default risk. These results probably suggest that banks tend to operate with high liquidity ratio and lower overall default risk in order to reduce their risk exposure and pay fewer premiums for insurance. These results may also show the stabilizing effect of deposit insurance on financial markets like Enkhbold and Otgonshar (2013) expressed.

4. CONCLUSION

Deposit insurance is a system which guarantees repayments of deposits to depositors and in this way protects financial system's stability preventing bank runs. However, there is a common suspicion in academic literature on whether this system leads banks to behave less prudently and encourages them to take excessive risks. This question is widely investigated in academic researches and common view is that the system is a source of moral hazard.

In Turkey, deposit insurance system is being held for many years under various politic attitudes. For example during 1990s, deposit insurance covered 100% of deposits in each bank. In 2004 coverage limit was discounted to 50,000 TL and since February 2013 coverage limit is 100,000 TL for each depositor in each bank. In this context, the aim of this study is to determine what kind of results occurs at bank level by implementing the system. To analyze the possible effects of deposit insurance system on bank risks, I applied Ordinary Least Squares method to the bank level data including a panel of 26 banks operated in Turkey during 2002Q4-2013Q1. The key independent variable of this study is the amount of insured deposits over total deposits (DI). The aim of the study is to determine the effects of DI on various kinds of risk factors. I considered four risk factors which are credit risk (NPL), interest rate risk (INT), liquidity risk (LIQ) and overall default risk (Z-score).

Supporting the moral hazard argument, results suggest that deposit insurance raises credit risk which is proxied by non-performing loan ratio and interest rate risk. On the other hand, deposit insurance seems to have a stabilizing effect on banking markets in terms of liquidity and insolvency.

Basing on these findings, a trade-off between benefits and costs of deposit insurance system which is implemented in Turkey can be seen. In order to solve this trade-off, it can be suggested that regulatory institutions should focus on the moral hazard of banks to eliminate the adverse effects of the system.

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THE *myRA* PROGRAM: WILL AMERICANS SAVE?

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ABSTRACT

In his 2014 State of the Union Address, President Obama announced his plans to create a new retirement account to be known as the *my*RA (My Retirement Account) program to address the underinvestment problem for lower income families in America. *My*RAs are specialized Roth IRAs that can only be invested in the Government Securities Investment Fund (G Fund) of the Thrift Savings Plan for federal employees. Our analysis compares possible *my*RA investment outcomes with possible Roth IRA investment outcomes to determine which investment vehicle offers the best outcome to potential investors. We examine outcomes for investments in the G Fund (*my*RA) and five mutual funds (Roth IRA). We find that equity mutual funds substantially outperform the G Fund. Despite this, *my*RAs might offer something in the way of helping individuals become disciplined investors by providing low barriers to entry. Additionally, *my*RAs might provide an interesting, and higher-yielding, option for short-term investment needs for individuals who already take advantage of employer-sponsored retirement accounts.

1. INTRODUCTION

In his 2014 State of the Union Address, President Obama announced his plans to create a new retirement account to be known as the *my*RA (My Retirement Account) program. The intent of this program is to address the fact that approximately fifty percent of American workers do not have access to employer-sponsored, tax-advantaged retirement plans such as 401(k)s. Families with lower income, lower education, and/or nonwhites/Hispanics have significantly lower instances of investing in retirement plans compared with families with higher income, higher levels of educations, and/or whites/non-Hispanics (Bricker, 2012).

It is known that lower income families, families with lower levels of education, and minority families are less likely to have retirement accounts.

What is not clear is whether the lack of retirement funds with these families is due to a lack of financial education, a lack of resources (i.e. these individuals are currently living "paycheck to paycheck" and feel that they cannot afford to dedicate a portion of their income to retirement contributions), or if their employers do not offer a retirement plan. It is likely that many of the families with lower incomes and levels of education are financially illiterate. In 2005, Harris Interactive conducted a survey on behalf of the National Council of Economic Education to determine the level of understanding of economics in adults and high school students. The results of this survey indicate that most adults do not have a firm understanding of basic economic principles with an average adult score of 70 ("C") on an economics and personal finance quiz. The results of the survey indicate that 28 percent of adults earned an "F" on the quiz and that individuals with only a high school education were 5 times more likely to fail compared with college graduates.   Additionally, non-white respondents were more likely to earn an "F" compared with white respondents. The average score for non-white respondents was a "D" while the average score for white respondents was a "C". In their analysis of financial literacy and retirement planning, Lusardi and Mitchell (2009) found that individuals who are more financially literate plan for retirement[1].

With the new *my*RA accounts, employers can elect to participate and provide automatic payroll deductions to be deposited into the investor's *my*RA account. There are no fees to the employer or employee/investor. Participants can open an account with as little as $25. Ongoing pay period contributions can be as low as $5. This offers lower barriers to entry compared with Roth IRAs. The only investment alternative available for the *my*RA program is the Government Securities Investment Fund (G Fund) of the Thrift Savings Plan for federal employees.

2. BACKGROUND

An individual retirement account (IRA) can be an important component for retirement savings in the U.S. According to Copeland (2010), 26.8% of estimated total U.S. retirement plan assets came from IRA and Keogh plans[2] in 2008. Defined contribution plans, which include 401(k)s, account for 19.4% of retirement plan assets. The average IRA account balance in 2008 was $54,863 and the median account balance was $15,765.   The average contribution was $3,665 and 42.4 percent of IRA holders contributed the maximum annual contribution limit[3].

There is an ongoing debate as to whether or not the *my*RA program will be successful. Jones and Luscombe (2014) note that private financial firms will be unlikely to have interest in these small accounts due to the administrative hassles of dealing with small sums of money.

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[1] See also van Rooij et al. (2012), Lusardi and Mitchell (2007, 2009, 2011), Bernheim and Garrett (2003), Hilgert et al. (2003)

[2] Keogh loans are tax-deferred retirement plans. These plans are for self-employed individuals or individuals who work at unincorporated businesses.

[3] The maximum annual IRA contribution for individuals under the age of 50 in 2008 was $5,000. Individuals over the age of 50 could contribute $6,000 in 2008. The current contribution limit is $5,500 for individuals under the age of 50 and $6,500 for individuals over the age of 50.

These administrative costs are instead being absorbed by the Federal government until the accounts reach such a size that they are rolled into a Roth IRA at a private financial institution. MyRA account balances cannot exceed $15,000.

Jones and Luscombe (2014) do note that employers might be willing to participate in this program as early evidence suggests that it will be easy to set up and many employers have been willing participants in savings bond purchase programs.

Critics might also consider the *my*RA account to be a "gimmick" to help finance the federal budget deficit as the only investment option is in Treasury securities via the Government Securities Investment Fund (G Fund) of the Thrift Savings Plan for federal employees. Burman et al. (2001) note that many critics considered the Roth IRA to be a gimmick when it was introduced in the Taxpayer Relief Act of 1997. Roth IRAs were thought to be a budget gimmick as they generated more upfront revenue for the federal government because contributions in Roth IRAs are made with after-tax dollars and qualified withdrawals are not taxed. Contributions for traditional IRAs are made with before tax dollars and qualified withdrawals are taxed as ordinary income. Initially investors pay more taxes with a Roth but over a longer period of time they actually pay fewer taxes when compared with a traditional IRA, thus generating more upfront tax revenue for the federal government.

While it is unclear whether or not the *my*RA program will be successful, it is clear that Americans are not saving well for retirement. Table 1 provides statistics from the 2010 Federal Reserve Board's Survey of Consumer Finances (SCF) detailing family holdings of financial assets based on characteristics of families and type of asset.   We are particularly interested in retirement accounts. 50.4 percent of all families hold a retirement account and the median value of retirement accounts is $44,000. Only 11 percent of families that fall in the "less than 20" percentile of income have a retirement account and the median value of their retirement accounts is $8,000. 31 percent of families that fall in the "20-39.9" percentile of income have retirement accounts and the median value is $11,000. This data suggests that is imperative to find ways to encourage and enable these individuals to save for retirement.

Table 1: Family holdings of retirement accounts

	Percentage of families holding asset	*Median Value of holdings for familes holding assets (thousand of dollars)*
All families	**50.4**	**44.0**
Percentile of income		
Less than 20	11.0%	8.0
20–39.9	31.1%	11.0
40–59.9	52.4%	23.0
60–79.9	69.7%	36.1
80–89.9	85.5%	88.0
90–100	89.8%	277.0
Education of head		
No high school diploma	17.1%	16.3
High school diploma	40.6%	25.0
Some college	48.6%	27.0
College degree	70.4%	76.0
Race or ethnicity of respondent		
White non-Hispanic	58.1%	54.0
Nonwhite or Hispanic	34.4%	25.0

Source: 2010 Survey of Consumer Finances, Federal Reserve Board

2.1 myRAs

The proposed *my*RA plan offers several advantages over traditional retirement savings accounts. *My*RAs are a special form of a Roth IRA and will be available to individuals with adjusted gross incomes (AGIs) of less than $129,000 and to couples with combined AGIs of less than $191,000 (which is the limit for all IRAs). If employers elect to participate, they will set up an automatic payroll direct deposit for the employee with a minimum employee initial contribution of $25 and a minimum employee payday contribution of $5. This offers a significant reduction in barriers to entry compared with Roth and Traditional IRAs which can often require initial contributions of $1,000 or more. Employer and employee participation is voluntary.

Contributions can be withdrawn tax free at any time and earnings can generally be withdrawn tax-free after the age of 59 ½. Additionally, the principal is guaranteed by the Federal government. Finally, there are no fees associated with *my*RA accounts. Regular Roth IRA accounts can be subject to trading fees, closeout fees, and costs associated with mutual funds (e.g. loads and annual fees). *my*RAs must be converted to Roth IRAs once the account balance reaches $15,000 or after 30 years, whichever comes first.

The *my*RA also has several disadvantages. A significant disadvantage is that the only investment option is the G Fund. While this offers an advantage in that principal is guaranteed and less-sophisticated investors do not have to decide between a large numbers of investment alternatives, it also provides very low rates of return compared to equity funds and some bond funds. The G Fund had a 2.45 percent rate of return in 2011 and 1.47 percent in 2012. While G Fund principal is guaranteed, the interest payments are not. In 2012, the G Fund paid 1.47 percent while CPI was 2.1 percent.

This means that investors in the G Fund earned a negative annual return after accounting for inflation. Average annual returns for the G Fund are provided in table 2 and average rates of inflation are reported in table 3. Another disadvantage is that while this plan is aimed at employees who do not offer employer-sponsored retirement plans, employers are not obligated to offer the plan to their employees. Additionally, self-employed individuals are not eligible for *myRA* accounts.

Table 2: G Fund Returns

Panel 1: Average Annual Returns	
(As of December 2013)	
1-Year	1.89%
3-Year	1.94%
5-Year	2.32%
10-Year	3.39%
Panel 2: Calendar Year Returns	
2009	2.97%
2010	2.81%
2011	2.45%
2012	1.47%
2013	1.89%

Source: www.tsp.gov

Table 3: Average Inflation

2009	-0.36%
2010	1.64%
2011	3.16%
2012	2.07%
2013	1.46%

Source: http://data.bls.gov

2.2. Roth IRAs

Unlike *my*RAs which require an initial contribution of $25, the initial contributions for Roth IRAs vary substantially depending on the private financial firm that an investor selects. Table 4 details the initial minimum contribution for several financial institutions. Some institutions have no minimum required contributions and other institutions having minimum initial contributions of $1,000 or more.

Table 4: IRA Initial Contributions

Financial Institution	Initial Contribution
Charles Schwab	$1,000
Fidelity	$0
Janus	$500
Scotttrade	$0
T. Rowe Price	$1,000
TD Ameritrade	$0
Vanguard (select funds)	$1,000
Vanguard (other funds)	$3,000
Wells Fargo (investment guidance)	$1,000
Wells Fargo (no investment advice)	$0

*Fees as reported on firms' websites on June 5, 2014

The Obama administration designed *my*RAs to address the problem of individuals not saving. This is especially true for individuals who do not have employer sponsored retirement savings plans and individuals in lower-income brackets. Having to first accumulate $1,000 before opening an IRA account is presumably a large, and perhaps insurmountable, task for individuals who are living paycheck to paycheck in a low income bracket. Consider an individual who initially saves $25 and then deposits $5 a week into a non-interest bearing account. It would take this individual 195 weeks (3.75 years) to accumulate $1,000. Roth IRAs have the same AGI limits, annual contribution limits, and taxation as *my*RAs. However Roth IRAs are subject to various fees.

3. ANALYSIS

We analyze possible account balances for six different investment alternatives. One investment alternative is the G Fund which is the only investment option for *my*RA participants. Investors choosing to invest in a *my*RA have a minimum investment requirement of $25. The minimum ongoing contribution is $5 per pay period. Given this low investment threshold, investors are able to begin contributing to their *my*RAs immediately. Additionally, there are no fees associated with *my*RAs.

Unlike using *my*RAs, individuals wishing to invest in Roth IRAs will have an incredible number of investment alternatives available to them. These options include stocks, bonds, mutual funds, and ETFs. Many investors will prefer to use mutual funds because of the diversification opportunities provided with mutual funds. Even with mutual funds, investors will have a number of choices for investment. According to 2014 Investment Company Fact Book, there were a total of 7,707 mutual funds in 2013. Additionally, the minimum contributions of Roth IRAs are generally large in comparison to the myRAs. This means that many individuals, particularly those with lower incomes, will not be able to begin investing immediately because they will need to save funds until they can meet the typical minimum initial investment of $1,000.

Smith et al. (2012) note that individuals who are less financially sophisticated are less likely to use a financial planner. Given that *my*RAs are intended to encourage individuals who lack employer savings plans to save, it is likely that many *my*RA participants are less financially savvy.

In their survey of mutual fund shareholders, Alexander et al. (1998) find that although the single most used source of information is the mutual fund prospectus, 42 percent of respondents also heavily utilize financial publication such as newspapers and magazines. To evaluate possible outcomes from investing in a Roth IRA, we went to Kiplinger's website and looked at their top 25 no-load funds as of May 31, 2014 (Huang, 2014)[4]. From this list, we randomly selected 5 funds to evaluate. Our selection of mutual funds is the Vanguard Dividend Growth, T. Rowe Price Small-Cap Value, Dodge & Cox International Stock, Fidelity Total Bond, and Vanguard Short-Term Investment Grade. This provides us with three equity funds and two bond funds. Table 5 provides the average three, five, and ten year rates of returns and expense ratios for each fund as provided by Kiplinger's website.

Table 5: Roth IRA Mutual Funds

Mutual Fund Name	Ticker	3 year avg.	5 year avg.	10 year avg.	Expense ratio	Type
Vanguard Dividend Growth	VDIGX	14.75%	16.90%	9.31%	0.31	Large Company Stocks
T. Rowe Price Small-Cap Value	PRSVX	12.71%	18.93%	10.13%	0.81	Small Company Stocks
Dodge & Cox International Stock	DODFX	9.25%	14.42%	9.92%	0.64	International Stocks
Fidelity Total Bond	FTBFX	4.44%	7.18%	5.60%	0.45	Bond
Vanguard Short-Term Investment Grade	VFSTX	2.37%	4.14%	3.76%	0.21	Bond

Source: http://www.kiplinger.com/tool/investing/T041-S000-kiplingers-25-favorite-fund/index.php

3.1. Scenario One

Our initial scenario begins with an initial investment of $25 (the minimum required initial contributions for *my*RAs) at time zero and subsequent weekly contributions of $5 (the minimum paycheck contribution for *my*RAs). We use the five year[5] average rate of return for the G Fund, to find possible account balances for *my*RA accounts in five, ten, fifteen, and twenty years. As this is a tax-advantaged investment account and there are no fees, we do not consider taxes or fees in this analysis. After twenty years the account balance is $6,654.72.

Our investor in this scenario has contributed $5,225 over the twenty year period. Not surprisingly, the investment yields a fairly low return. However, there is very little risk in the G Fund.

We use this same scenario (initial savings of $25 at time zero and subsequent weekly contributions of $5) to evaluate possible outcomes for our five Roth IRA alternatives. A significant difference for an investor using a Roth as opposed to a *my*RA is that many investment companies require an initial contribution of $1,000 to open a Roth. We assume that the investor deposits $25 into a non-interest bearing account and adds $5 a week until week 195. At week 195 the investor has saved $1,000 and uses this $1,000 to open a no-load mutual fund and deposit $5 a week thereafter. Another difference in Roth IRAs compared to *my*RAs is that *my*RAs have no fees associated with them while mutual funds used in Roth IRAs will have expenses. We therefore use after-expense account balances based on the reported expense ratio to evaluate mutual fund account balances.

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[4] http://www.kiplinger.com/tool/investing/T041-S000-kiplingers-25-favorite-fund/index.php

[5] We also used three and ten year rates. Results are comparable and are not displayed. The tables with these results can be provided upon request.

Roth IRAs and *my*RAs are both tax advantaged accounts and we therefore do not need to consider the impact of taxes in our analysis.

Results are displayed in Table 6. As expected our results vary substantially based on the type of mutual fund. Our equity funds have higher account balances than our bond funds. Our outcomes for twenty year investments range from $7,804.07 (Vanguard Short-term Investment Grade fund) to $44,594.44 (T. Rowe Price Small Cap Value fund). With the exception of the Vanguard Short-term Investment Grade fund, our investment alternatives do substantially better than our 5-year average rate of return *my*RA account balance of $6,654.72.

Table 6: Account Balances for Scenario One

	VDIGX	PRSVX	DODFX	FTBFX	VFSTX	Gfund
Avg Year	16.90%	18.93%	14.42%	7.18%	4.14%	2.32%
5	$1,596.03	$1,617.75	$1,541.86	$1,426.54	$1,383.32	$1,406.15
10	$5,661.38	$6,106.68	$4,935.92	$3,541.07	$3,119.48	$2,957.14
15	$14,980.10	$17,196.62	$11,689.78	$6,500.85	$5,232.47	$4,698.84
20	$36,312.03	$44,594.44	$25,129.34	$10,643.75	$7,804.07	$6,654.72

Gfund: $25 investment at day 0 and weekly contributions starting at $5. Total contributions of $5,225.

Roth: Initial investment of $25 and subsequent investments of $5 a week in a non-interest bearing account until week 195 when the account reaches $1,000. Then a $1,000 initial investment in a Roth IRA with subsequent investments of $5 a week thereafter.

3.2. Scenario Two

In our initial scenario, our investor contributes $5 a week over the entire twenty year investment period. To further our analysis, we assume that an investor might contribute more in later years as their pay increases over time. Additionally, since *my*RA accounts are aimed at lower-income families, it is not unreasonable to suggest that an investor's circumstances could improve over time. In our second scenario, we assume that the investor contributes $25 at time zero and begins contributing $5 a week in week 1. Every year, the investor increases his/her weekly contribution by 5%.

This means that the investor contributes $5 a week in year 1 ($260 total for the year) and $12.63 a week in year 20 ($656.76 total for the year). The total contributions over a twenty year period are $8,487.15. At twenty years, our G Fund account balance is $10,575.57.

As with scenario one for Roth IRAs, our investor needs to accumulate $1,000 before he/she can open a Roth IRA account. The investor does this by initially saving $25 at time zero in a non-interest bearing account. The investor initially contributes $5 a week and increases this/her weekly contributions by 5 percent each year. In week 183 our investor has accumulated $1,000 and opens a Roth IRA. Investment outcomes range from $12,173.89 (VFSTX) to $59,485.27 (PRSVX). This compares to $10,575.57 with the *my*RA. Total investor contributions are $8,487.15. Results are reported in table 7.

Table 7: Account Balances for Scenario Two

	VDIGX	PRSVX	DODFX	FTBFX	VFSTX	Gfund
Avg	16.90%	18.93%	14.42%	7.18%	4.14%	2.32%
Year						
5	$1,798.60	$1,833.81	$1,735.83	$1,588.61	$1,533.97	$1,547.58
10	$6,921.54	$7,454.92	$6,054.55	$4,387.54	$3,884.46	$3,677.20
15	$19,423.49	$22,149.91	$15,363.58	$8,903.16	$7,302.53	$6,604.49
20	$49,031.12	$59,485.27	$34,806.28	$15,986.85	$12,173.89	$10,575.57

Gfund: $25 investment at day 0 and weekly contributions starting at $5 and increasing by 5% annually. Total contributions of $8,487.15.

Roth: Initial investment of $25 and subsequent investments of $5 a week (increasing by 5% every year thereafter) into a non-interest bearing account until week 183 when the account reaches $1,000. Then a $1,000 initial investment in a Roth IRA with subsequent weekly investment beginning at $5.79 and increasing by 5% each year.

3.3 Scenario Three

Our final *my*RA scenario assumes that the investor contributes $25 at time zero and begins contributing $5 a week in week 1. Every year the investor increases this weekly contribution by 10%. Weekly contributions in year 1 are $5 ($260 total for the year) and $30.58 in year 20 ($1,590.16 total for the year). In twenty years, the account balance is $17,691.92. However, at this point in time, *my*RAs are only allowed to grow to $15,000 before they have to be converted to regular Roth IRAs. In week 967 (18.60 years) the account balance is $14,987.45. The investor would need to convert the *my*RA (or a portion of the account) to a Roth to avoid going over the $15,000 account limit.

For our Roth IRA, our investor begins at time zero with $25 and then starts saving $5 a week. Each year the weekly contributions increase by ten percent. The investor initially saves $25 at time zero in a non-interest bearing account. The investor then initially contributes $5 a week and increases the weekly contributions by 10 percent each year. In week 174 our investor has accumulated $1,000 and opens a Roth IRA. The investment outcomes range from $18,567.75 (VFSTX) to $78,159.93 (PRSVX). This compares to $17,691.92 with the *my*RA. Total investor contributions are $14,781.50. Results are shown in table 8.

Table 8: Account Balances for Scenario Three

	VDIGX	PRSVX	DODFX	FTBFX	VFSTX	Gfund
Avg Year	16.90%	18.93%	14.42%	7.18%	4.14%	2.32%
5	$2,010.06	$2,052.58	$1,934.48	$1,758.41	$1,693.52	$1,703.33
10	$8,256.38	$8,880.70	$7,240.68	$5,291.39	$4,702.41	$4,610.80
15	$24,537.09	$27,810.27	$19,647.01	$11,796.17	$9,826.43	$9,522.96
20	$65,247.52	$78,159.93	$47,532.74	$23,581.05	$18,567.75	$17,691.92*

Gfund: $25 investment at day 0 and weekly contributions starting at $5 and increasing by 10% annually. Total contributions of $14,781.50. *Account balance reaches $14,987.45 in week 967 (18.60 years). At this point the account must be converted to a Roth.

Roth: Initial investment of $25 and subsequent investments of $5 a week (increasing by 10% every year thereafter) into a non-interest bearing account until week 174 when the account reaches $1,000. Then a $1,000 initial investment in a Roth IRA with subsequent weekly investment beginning at $6.66 and increasing by 10% each year.

4. RESULTS

Given the low rates of return for the G Fund, it is not surprising to find that the three equity fund alternatives for the Roth (after expenses) outperformed the *my*RA account. Of course, the risks associated with the equity funds are substantially greater than the risk associated with the G Fund and therefore these results should be expected. As noted earlier, the only risk associated with the G Fund account is the risk to income. That is, the contributions to the G Fund are guaranteed because they are invested in Treasuries. The equity funds' contributions are subject to the risk of the financial markets.

The two bond fund alternatives perform better on an after-expense basis compared to the *my*RA account. However, their account balances are not substantially greater than the *my*RA account balance. This should not be surprising as the Vanguard Short-term Investment Grade fund invests primarily in short-term corporate bonds, asset-backed bonds, and Treasuries. The Fidelity Total Bond fund is also fairly low risk as 76 percent of its holdings are in investment grade corporate bonds and Treasuries.

Given these results, equity accounts in Roth IRAs are likely to be the best alternative for investors planning for retirement. However, for individuals with very low risk tolerance[6], *my*RAs might provide a better alternative over bond fund Roth IRAs. It should be noted however, that saving for retirement in bond funds is unlikely to offer returns that would allow an investor to retire in comfort if the *my*RA or Roth IRA bond fund is the sole source of retirement income[7]. Additionally, *my*RA accounts can only be held for 30 years or until the account reaches a balance of $15,000 before they have to be converted to a Roth IRA.

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[6] Siegel (1998) would argue that equities, while appearing riskier in the short-run, are actually safer in the long-run due to mean reversion in stock returns.

[7] Research also indicates that most individuals do not allocate 100 percent of their holding to bonds. Waggle and Englis (2000) find that only 6.4% of individuals under the age of 45 in the lowest net worth quartile invest in all bonds. 3.4% of individuals in the highest net worth quartile invest in all bonds.

It should also be noted that none of the scenarios we evaluated are likely to be sufficient for retirement purposes. For instance, in scenario three ($5 weekly contribution increased by 10 percent a year), the largest annual contribution occurs in the final year and amounts to $1,590 annually. This is well below the current annual contribution limit of $5,500. While investors in lower income brackets are perhaps unlikely to be able to afford to invest $5,500 a year, it is to their advantage to increase their contributions by more than 10 percent a year or to invest more than $5 a week initially.

5. CONCLUSION

Based on our analysis, it appears that the best alternative would be for investors to begin saving for the $1,000 initial investment that it typical for opening Roth IRAs. Once this $1,000 is saved, investors should open a Roth IRA and invest in equity mutual funds.

Given the poor performance results of the myRA compared with equity mutual fund Roth IRAs, can myRAs work? Despite the fact that investing in an equity mutual fund Roth IRA should yield better outcomes, there are still uses for *my*RAs. One advantage that the *my*RA offers is that it can help new investors establish a disciplined approach to investing. While an investor can save small amounts until they reach the $1,000 initial contribution amount for a Roth IRA, a lower-income, new investor might find it tempting to reach into that savings when emergencies arise and before they have accumulated the necessary $1,000. If the money is already in a *my*RA account, the temptation to withdraw the contributions is likely significantly lower.

Another interesting use of a *my*RA is as a short-term savings account. This might be an exciting option for higher-income individuals, who still qualify to make IRA contributions, and have other retirement accounts such as 401(k)s. Investors who are saving for short-term needs (e.g. down payment for a house) and/or emergency needs could do well with a *my*RA account. With money market account rates at less than 0.5 percent, the G Fund (1.89 percent in 2013) could be an intriguing alternative to money market accounts for short-term needs. As noted earlier, contributions to *my*RAs can be withdrawn without taxes. Savvy investors could transfer *my*RA account funds to a Roth IRA to avoid reaching the $15,000 limit on *my*RA accounts until they reach the thirty year limit.

Perhaps the biggest hurdle that the *my*RA accounts face is the same hurdle that all savings opportunities face. How do you convince an individual who is financially illiterate to save/invest for retirement? If an individual is living paycheck to paycheck, will the possible investment outcomes entice lower income families to forgo consumption and save for retirement? In scenario two, our investor made total contributions of $8,487.15 over twenty years. The ending account balance for the *my*RA G-fund account was $10,575.57. This yields a total dollar return of $2,088.42 for the twenty year period. This outcome might seem discouraging to an individual who is likely making sacrifices to make contributions to a *my*RA account. If this is the case, it is likely that lower income individuals will not take advantage of *my*RAs. If *my*RAs are going to successful in encouraging lower income families to invest for retirement, the lack of financial literacy must be addressed.

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CURRENT DEVELOPMENTS AND TRENDS IN HIGHER EDUCATION

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ABSTRACT

Higher education institutions have assumed a major role in the social and economic development of countries. Recently, there has been a transformation from the traditional to the modern within a new approach. In this dynamic environment, universities are not only responsible for teaching and research activities but are also responsible for responding to students' demands, the government, and the business world. As higher education environment has changed mainly because of globalization and a number of other relevant international trends, understanding all these trends is a very significant factor for the improvement of universities. During the transformation process, universities should be aware of all new approaches in the higher education area to prepare their students for a new world. Several individuals, newspapers, and magazines have mentioned the transformation process in the higher education sector, but have not comprehended it in depth. The purpose of this article is to underscore the determined trends and developments in higher education. First, the article reviews relevant literature. Then, it lists the eight approaches. The study uses the related literature as the basis to explain all eight identified developments and trends. The article concludes with a summary of the developments and trends to grasp the new approaches in the transformation process of higher education.

1. INTRODUCTION

For a long time, higher education was regarded as a luxury rather than a necessity. Many people considered higher education as an elitist activity and not as a necessity. Over the course of time, as people clearly observed the importance of higher education, the demand of higher education increased proportionately.

In this study, the term "expansion," which represents this rising demand, is examined as the first challenge of the higher education sector. Due to expansion, creating diversity and encountering different demands have become more important. Hence, diversity is also emphasized as another important issue of higher education. The effects of globalization have created a kind of process that integrates international, intercultural, and global perspectives. This process has encouraged the international mobility of students and academics, which has improved the sharing of intercultural skills and purposes. Therefore, the impact of globalization has also been an important factor, which supports the need for diversity. Over time, state universities cannot be sufficient in satisfying different demands. The inabilities of state universities to achieve these increasing and different requests have led to the establishment of private universities. In addition to all these points, in such a changing context, universities also have to act as an important part of the knowledge network. For disseminating knowledge, higher education institutions cannot function without new information technologies. Information technology assists educational institutions to become more competitive within both the national and international contexts. In parallel with all changes in higher education, universities can be regarded as a commercial product, governed essentially by market forces, and has brought in the concept of competitiveness (Mohamedbhai, 2003). Universities have to compete for funding, innovation, collaborations, new technologies, research, and recruitment of students. Therefore, the higher education institutions need a new management approach.

Each of these developments is related. Rising enrolment has caused an increasing demand. This demand results in more diverse student expectations. Expansion and diversification require additional revenue and new channels. To meet the increasing costs, the need for private institutions and collaborations with industry/government emerges. It can be clearly observed that none of determined items can be thought of separately. This article concerns all the developments and trends in the higher education area and will discuss these issues, particularly the eight most significant items.

2. LITERATURE REVIEW

Throughout history, the university concept has undergone many transformation processes. Nowadays, the three major dynamics in this process are technology, globalization, and competition. In parallel with these major issues, Günay (2014) summarizes the tendencies in the higher education area as following: (i) changes in population, (ii) increase in student mobility, (iii) education as a global market, (iv) decrease in public funds, (v) increase in competition, (vi) student as a customer, (vii) increase in flexibility, (viii) increase in transnational education, (ix) increase in strategic alliances, (x) partnerships and networks, and (xi) rise of Asia.

The academic changes of the late 20th and early 21st centuries are more extensive due to their global nature and the number of institutions and people they affect, and in the early 21st century, higher education has become a competitive enterprise (Altbach et al., 2009). Universities compete for status, ranking, and funding from governmental or private sources. While competition has always been a challenge in the academic world and it can contribute to improvement, it can also cause a fall in academic values and mission.

A report prepared for the UNESCO 2009 World Conference on Higher Education determined the main trends in higher education as the following items: globalization, greater access to higher education, quality assurance in higher education, research, privatization, shifts in student numbers-characteristics-needs and interests, change in teaching and learning approach, information technology, and distance learning. The report says that the traditional research-based university will still exist, but privatization, massification, and commodification greatly increase the need for prioritizing teaching, learning, and assessment, and for effecting changes that are anchored in credible scholarship and proven strategies. Therefore, policymakers define higher education institutions as crucial not only for education, but also for scientific research, innovation, and regional economic development.

Pasternack et al. (2006) state that the major developments in higher education can be identified as expansion, differentiation, greater flexibility, quality orientation, standardization, employability, internationalization, and lifelong learning. Altbach et al. (2009) propose that trying to examine these trends separately is similar to trying to pull an individual string from a knotted mass—tugging one brings along several others: mass enrolment has created a demand for expanded facilities for higher education. Larger enrolments result in more diverse student expectations and needs. Expansion and diversification create a need for new providers. System growth requires additional revenue and new channels for obtaining it. All of this (expansion, diversity, and funding shortages) generates concern for higher education quality.

Newman et al. (2004) assert that U.S. universities in several other countries, such as Denmark, Australia, and China, are moving toward new approaches for university governance for greater level of competition and responsiveness. Tunç (2013) claims that universities, in turn, are expected to respond to this newly created need and higher education institutions need to be equipped to respond to this challenge as effectively and efficiently as possible. In order to succeed in this task, universities need thorough understanding of all approaches in the higher education sector.

To explain all these approaches, the relevant literature, consisting of articles, reports, and proceedings, is thoroughly examined. Then, the article explains these new approaches in higher education with the aid of eight items. In this article, existing literature is used as the basis to determine the most important developments and trends in higher education.

3. NEW APPROACHES IN HIGHER EDUCATION

3.1. Expansion and Diversification

Higher education enrolment has expanded considerably in the last half century. In 1970, the UNESCO Institute for Statistics (UIS) estimated that in the world, there were nearly 32.5 million students enrolled in higher education. In the year 2000, this number increased to nearly 100 million. In 2010, the estimation shows to 178 million students in tertiary education. The dramatic expansion of higher education worldwide, as depicted in Figure 1 means that 4.3% average annual growth in higher education enrolment, a very rapid growth when compared to the 1.6% average annual growth in the world population over the same period (UNDP, 2012).

Figure 1 also reveals an accelerating expansion starting in the mid-1990s, with a 5.9% average annual growth of higher education enrolments in the first decade of the 21st century. The number of higher education students is forecast to further expand to reach 263 million by 2025 (British Council and IDP Australia, cited in Davis, 2003 and Daniel, 2009).

**Figure 1: Higher Education Statistics for 1970-2010 and 2025 Forecast (OECD, 2012)**
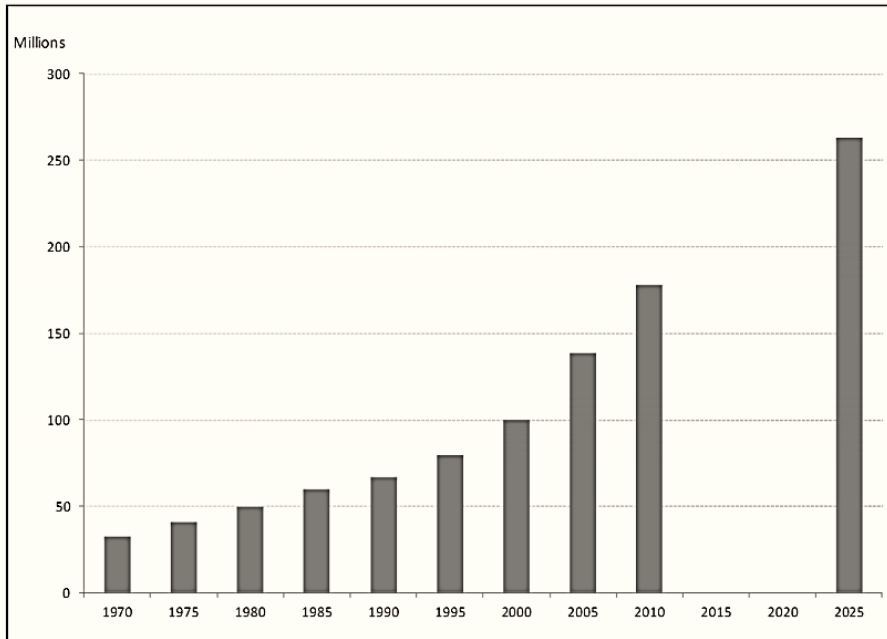
Another national statistical data by UNESCO and OECD shows that the entry rates in higher education, in OECD member countries, were only about 10% around in 1960. Between 1995 and 2009, entry rates in tertiary programs increased by nearly 25 percentage points, on average across OECD countries. All of these rates are undoubtedly evidence of the increasing higher education demand. Naturally, it is creating great pressure and some changing aspect on higher education systems and institutions such as adapting programs and teaching methods to meet the changing needs of students; the increasing number of universities and academics need; to encourage the private education and of course, some debate about education quality.

The expansion of higher education systems has often been associated with the need for increasing diversification, namely at the program level, based on the pressures to adapt more general programs to a more diverse student population and multiple regional, social, and economic needs (Teixeira et al., 2012). Teichler (2003) said that in the continuous process of expansion, higher education aims to respond to the growing diversity of students in terms of motives, talents and job perspectives. In the US, the term "diversity" is most often applied to concerns about the composition of the student body (Hurtado and Dey, 1997).

In many other parts of the world, the term "diversity" has been emphasized with regard to variety among the programs or services provided by academic institutions, and differences among the types of institutions themselves (Meek et al. 1996). The entire world, the diversification requires a new set of demands on higher education institutions and systems. Such as new approaches into teaching and research, as well as new curricula and administrative structures that respond more appropriately and effectively to the unique identities of the new kinds of students pursuing higher education (Altbach et al., 2009). To meet the increasing demand of tertiary education and to deal with intensive competitive area, the higher education institutions must avoid ***"institutional isomorphism"*** (DiMaggio and Powell 1983). In order to prevent institutional isomorphism each university must have their own diversification politics. In other words, whilst avoiding the word "categorization" stresses diversification and individualization, and calls for "functional differentiation" of universities based on their own initiatives (Kitagawa and Oba, 2010). That is to say, higher education institutions are to respond to the differentiating demand for higher education by offering different dimensions with course programs, level of degrees, substantive profiles of institutions and programs of the same type, ranks of reputation and quality of the institutions and programs of the same type. Diversification concept is closed with expansion of higher education. Expansion tends to diversify of tertiary education. In other words, they are related to each other. It seems that higher education will become even more diverse in the future through the establishment of new higher education providers.

3.2. Internationalizations

Internationalization strategies are designed to promote international mobility and convey intercultural skills. These strategies aim at the compatibility of degrees or certifications, transferability of educational achievements (ECTS), and the internationalization of the curriculum to ensure international competitiveness of both institutions and graduates (HWI, 2006). The Internationalization of universities activities greatly expanded over two decades. As shown in Figure 2, worldwide, there were about 4.1 million students in 2010 and by 2025; almost 8 million students are projected to be studying outside their home country (Özcan, 2011).

Figure 2: Growths in Internationalization of Tertiary Education (OECD, 2012)
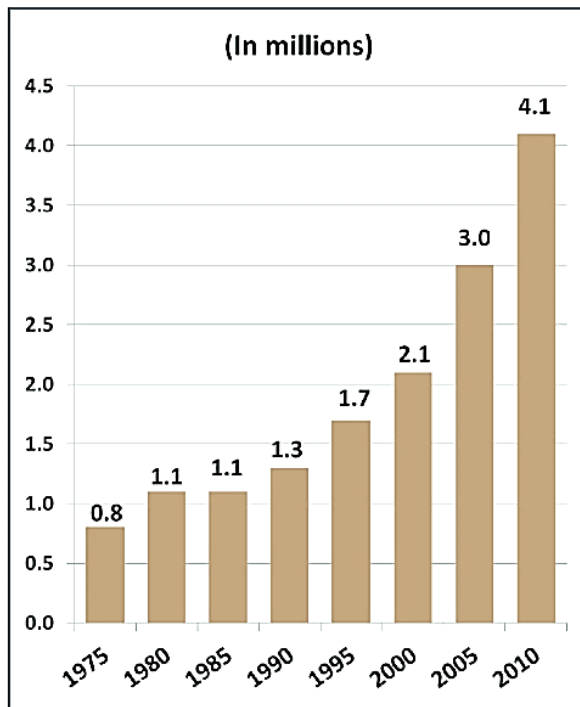
Teichler (2009) explained the term of internationalization with these themes:

a) Physical mobility, notably of students, but also of academic staff and occasionally administrative staff as well, is obviously the most visible international activity, and it is in the forefront of programs aiming to promote internationalization.

b) Recognition across borders of study achievements is a second major theme, which is clearly linked to the first one. As the results of learning in one country accepted as equivalent to that, which is expected to be learned in another country, if persons are mobile at the beginning of their study, during the course of study, upon graduation or in later stages of learning and work.

c) Other modes of transfer of knowledge across borders have been less the focus of recent public debates, but certainly have altogether a stronger weight than physical mobility of students and scholars: e.g. international knowledge transfer through media.

d) International orientations and attitudes, or, in contrast, national orientations and attitudes of the actors, the students and possibly the academics are a major issue of internationalization such as growing global understanding or a growing empathy with other cultures.

e) The similarity or heterogeneity of national systems of higher education plays an ambivalent role in this respect. On the one hand, a variety of national higher education systems, for example, are considered beneficial in order to provide mobile students the opportunity to learn from contrasts and thus to develop a more reflective mind and a better understanding of diversity. Nevertheless, the Bologna Declaration called for a structural convergence of higher education systems in Europe, among other reasons, as a means of facilitating intra-European student mobility.

Internationalization of higher education initiatives is certainly substantial for almost all country. There are many reasons affecting the number of international students for a country. Political realities and national security, government policies and the cost of study, use of English, the internationalization of the curriculum, e-learning, private higher education, quality assurance and control, support of European higher education space are major factors which affect the international student numbers (Altbach and Knight, 2007). Internationalization has a significant effect on political, economic and cultural life of the countries. However, only developed countries, especially, English-speaking countries provide most of services and so these countries earn the financial benefits and control the internal education industry.

3.3. Europeanization and Globalization

Europeanization in the context of globalization will lead to a more market-geared control and to growing intercontinental competition, including changes in the international division of labor, which all call for specific national and even regional responses (HWI, 2006). Europeanization is the regional version of either internationalization; it is frequently addressed when reference is made to cooperation and mobility, but beyond that to integration, convergence of contexts, structures and substances as well as to segmentation between regions of the world Teichler (2003).

Recent years, globalization is a substantial term used in many areas such as economic, social or cultural. New information technologies, communication tools, social networks result in important cultural and demographic changes in many area of the world. Higher education is certainly one of the region affecting global inclinations. Globalization means to the broad economic, technological, and scientific trends that directly affect higher education and are largely inevitable in the contemporary world (Altbach, 2006). In addition, it should be mentioned that internationalization, globalization, Europeanization differs in some respects. Internationalization leans for increasing of cross-border activities and internationalization concept usually is interested in relation to physical mobility, academic collaboration and knowledge transfer; for globalization concept, borders and national systems get blurred or maybe disappear and it is often associated with competition and market-steering, trans-national education, and finally with commercial knowledge-transfer [25, 26]. Internationalization in higher education is the process of integrating an international, intercultural or global dimension into the purpose, functions or delivery of higher education (Knight, 2004). With the emergence of the term "globalization" which was rejected at first and seen as a solely economic notion by higher education institutions, internationalization was interpreted as the reaction of higher education to phenomena of globalization (Kehm, 2011).

Europeanization is the regionally oriented kind of either internationalization or globalization and frequently addressed with reference to cooperation and mobility in a certain area (Race, 1997).

3.4. Privatization

New challenges like neo-liberal politics, globalization, internationalization, Europeanization cause the rising demand tendency of higher education. Therefore, all governments have to seek alternative financial sources or funds to satisfy rising demand. Privatization of universities has become one of the solutions solving this problem for governments. This means that, this kind of increasing demand has led to the privatization concept in higher education area. Privatization leads to some financial liabilities but also it has provided more opportunities for students. The restructuring of higher education brings along with it a debate some advantages and disadvantages of the private sector in comparison with the public sector. That is to say, this trend has been an important topic that provokes considerable debate in the field of higher education (Altunay, 2010). These debates are as follows:

a) **Academic capitalism:** Some people think that higher education is only steered by government. If education is governed by private financial sources, it can be a part of capitalist system. It means that the privatization of higher education results in the **"academic capitalism"** and this concept brings many negative and threatening elements. These elements are:

- In the Universal Declaration of Human Rights, higher education shall be equally accessible to all on the basis of merit. Moreover, in the International Covenant on Economic, Social and Cultural Rights, these words can be found, higher education shall be made equally accessible to all, on the basis of capacity, by every appropriate means, and in particular by the progressive introduction of free education. That is to say, education is a main human right. Because of the privatization, if people lack the necessary financial sources, they cannot access the higher education. This situation unfortunately causes inequalities in accessing the higher education.

- These disparities of higher education bring also another problem that can be called **"social stratification".** Social stratification is the inevitable consequence of unequal opportunities for higher education (Apple, 2001). There is a common debate over the social stratification created by the privatization of education. Public sector advocates have opposed the expansion of private sector in that they believe that it causes fractures in social cohesion. According to these defenders, the goal of privatization was an increase in the role of parents in the financing of education, which could increase inequalities in access to education and break social cohesion (Altunay, 2010). Moreover, they said that private education also could cause irreparable socioeconomic inequities between the poor and rich (Tilak, 1993).

b) **Institutional isomorphism:** The institutions of private higher education are commonly looked upon as being responsive to the changing demands in higher education area. However, when the types of educational programs of universities are examined, they seem to be quite similar and so show less diversity than expected. In general, private higher education institutions tend to offer courses almost the same area such as business management, computer science, and electrical engineering. It can be said that the occurring institutional isomorphism is a kind of disadvantages in private educational sector.

c) **The lack of quality education:** Another negative and threatening element is the quality of education. The people, who support the idea of the foundation universities is a part of academic capitalism, think that this kind of universities do not have the criteria of higher quality education. In private universities, the quality of education is depending on not only academics-teaching staff quality but also is about students' quality of universities. To full the capacity of university, the students who have very low scores can be accepted to the private universities. In that case, the student quality has become an important reason of education quality problem in the private universities. This image also affects the employability rate of foundation universities. Many researches show that unemployment rate is higher in private university graduates.

In contrast to the idea of **"academic capitalism"**, some people think that private higher education brings many   positive effects in society and it is a necessity of global world. These views are:

- The arguments in favor of private higher education usually are based on three issues: efficiency, equity, and diversity and choice (Altunay, 2010). It is commonly argued that private higher education institutions are naturally more influential than publics because of strong incentives and the private sector is more responsive to the changing demands of students and business world. In addition to all of these, private sector causes to the competition. This competition leads to low costs and improves the quality of education.
- Education is a very expensive investment and government sources alone are not sufficient to provide all students with quality education. Privatization decreases some of these pressures and so it supports the government budget. Belfield and Levin (2002) proposed that privatization in education eases the pressure on governments to meet increasing demand and relieves them of excessive cost. Privatization can help to solve many educational problems if government regulates it in ways that make private schooling accessible to students at different income levels (Cinoglu, 2006).

- The defenders of privatization advocate that as the private universities have more and independent financial sources, they can use them more freely than the state universities. For this reason, they may offer more opportunities to their students. In addition, generally, number of academics of private universities is more than state universities. In this kind of universities, the number of students for per academic is much smaller than the state universities. This factor facilitates improving the quality of education. Moreover, thanks to private universities, there has been a competitive environment. Because of this competitiveness, not only university management but also universities' academics also feel compelled to produce new and quality resources to cope with this competitive environment.

3.5. Lifelong Learning

Lifelong learning is the voluntary, ongoing and self-motivated activities for either private or professional motives. It refers to more qualifications with enhancing personal developments with a widen participation regardless of age, status, or gender. The notion of lifelong learning emerged as an educational strategy providing second chance of education to the adults. Nowadays, all universities should have continuous education centers. These centers must offer seminars, conferences, and refresher courses to the people who wish to be kept up-to-date in their profession, or to the people who would like to obtain additional skills or knowledge in a different fields. The major international organization such as OECD, UNESCO, and the Council of Europe support the spreading of lifelong learning in all societies. This approach defends that education opportunities are not limited largely to the early phase of life and dominated by formal education. Nowadays, there are many socio-economic reasons affecting the improvement of lifelong learning approach like globalization, technological change, and growth of knowledge society, the changing needs of labor market and the increasing of ageing populations. The European Commission's Communication report (2008) outlines that the education, training and employment policies of the Member States must focus on increasing and adapting skills and providing better learning opportunities at all levels, to develop a workforce that is highly skilled and responsive to the needs of the economy. The European University Association (2008) states some important points about the improvement and applying of lifelong learning strategies for universities. The report highlights the following items:

- Universities must understand lifelong learning in all aspects, and they must use it in their mission. Therefore, lifelong learning will be an important part of the culture of universities. The integrating lifelong learning to the mission is also necessary to enhance the creativity profiles of institutions.
- Universities embrace lifelong learning in their strategic planning.
- Thanks to mobility of students in life learning approach, different types of learners can be together in a different environment. This diversity causes with many different perspective to enhance and improve of university culture.
- Universities should provide suitable guidance with relevant academic or professional guidance to support all different learners who come from varied social and cultural backgrounds or are different ages.
- Providing relevant lifelong learning context, universities need partnerships with a range of other educational institutions, employers, trade unions

- Universities must behave as role models in society by offering lifelong learning opportunities for their own employees whether academic, administrative or staff.

As a conclusion of all these, lifelong learning can be seen by universities as a kind of efficient tool to keep up with the developed world.

3.6. New Management Approaches in Higher Education

The new challenges of management have an important impact on the success of higher education institutions. The competitive environment of higher education area, universities need reengineering to respond newly created requirements. Jongbloed (2004) stated that competition where possible, regulation where necessary*.* Management of institutions is one of the major parts of reengineering process. Based on the literature, ***autonomy, transparency, accountability, visionary*** are the most substantial tendencies for university managements. As one of the Magna Charta Observatory principles said that to meet the needs of the world around it, its research and teaching must be morally and intellectually independent of all political and economic power. The devolution of decision-making powers from government institutions to autonomous universities is a very significant factor. Autonomy of higher education institutions, in terms of both academic freedom and financial issues, is the most crucial requirement for their success. In such a case, higher education institutions can be more innovative implementations and can increase the performances (Özcan, 2011). Besides that autonomy, to establish an evaluation mechanisms for ***transparency and accountability*** has one of the inevitable requirements. Reducing procedural controls by government both financially and academically and funding an evaluation system to ensure transparency and accountability are necessary for visionary management in a university system.

The increasing demand for higher education causes a rising number of higher education institutions. This causes the emergence of a higher education market. When higher education is considered as a business, it should be examined in the concepts of the business definition which is mainly defined as "a business is an organization involved in the trade of goods, services, or both to consumers." Many studies agree that higher education is a kind of organization, there is no problem in this point. However, what about the meanings of good, service and consumer concepts in the definition of business? According to classical view of higher education, it is a main human right, it must be free of charge, and so higher education cannot be seen as a business. Alternative model emerged in contrast with the traditional model of higher education. It supports that higher education is a kind of business. Many higher education institutions started to adopt a more business-like approach in order to compete and survive in the changing education industry (Dahan and Şenol, 2012). This "strategic change" in academia is now creating its own ambiguity to the institutions that are not accustomed in different aspects of thinking and acting strategically (Gioia and Thomas, 1996). Actually, the message for the academia is clear: academia is not allowed to lock themselves up in their ivory towers anymore (Weymans, 2010). Nevertheless, many academics are disturbed from the idea of managing higher education institutions in a market-oriented manner.

In this situation, the reluctance of the academics on business approach is substantial impact on development of the business approach.

One of the substantial debates is the understanding of the customer concept. Customers are defined as the ones who receive the benefit of the product or service and they are the ones who can pay for it in marketing theory. When the definition applies to the higher education, universities provide educational service and students benefit from these services and they are paying for the education. Thus, students are perceived as customer of the higher education institutions. In addition, the students are as a customer they can share responsibilities of higher education institutions. Student-designed curricula, teaching guarantees and increased student opinions in determining education policy are only some examples of sharing responsibilities. As a result, higher education institutions adopt a student-customer model with an academic mission. In addition to, the defenders of customer concept, there are also some people who are the cons of this concept. They think that although to tag the students as a customer is not normal and perhaps even a sin. According to them, the students are called as customers; it can be contrast with the core of education. Second important point is to make a comparison between the responsibilities of a business entity and a higher education institution. A business entity is a kind of institution that is formed to engage in business activities for selling a product or a service to make profit. However, the purpose of education institutions cannot be regarded such simplistic; it is a much more complex process than business. According to the *World Education Report 1991,* prepared by the *UNESCO, t*he responsibility of the higher education institutions can be summarized as transferring the knowledge to the new generations by teaching, training and doing research; determining a balance between basic and applied research and between professional training and general education; meeting the priority needs of their respective societies. Also, higher education are expected to function as social institutions actively for the development of individual learning and human capital, the socialization and cultivation of citizens and political loyalties, the preservation of knowledge, and the fostering of other legitimate pursuits for the nation-state (Gumport, 2000). As can be seen in these statements, the goal of higher education cannot be thought as a simple way. It is very complicated process and different from business entities. Overall, in the light of new trends and challenges, higher education institutions can be seen as a business approach but of course, without neglecting academic quality and social responsibilities of higher education.

3.7. University-Government-Industry Collaborations

The roles of universities have changed due to intensifying technology development and increasing competitive environment. In the past, universities had responsibility for only research and teaching but nowadays, because of new challenges, they need government and industry collaborations. A global challenge for higher education institutions is to respond to an increasing variety of societal needs by using less public money and by becoming more efficient in their internal functions Välimaa (2011). The different social needs and wants emerges effecting with global expectation and to meet the changing demands, the universities must behave as innovative and active. As industrial companies have changed liked universities, they also need universities. They were dealing with only producing a new product but nowadays it is not enough. The supports of university and government are necessary for them to struggle with their rivals. The government supports university and industry with financial contribution and their supported policies.

Therefore, the universities are part of industry with their faculty members and researchers to develop new project and product. The partnership of these three main players - university, government and industry- is very important for developing of a country. Gibbons et al. (1994), Nowotny et al. (2001) state that governments have promoted national prosperity by supporting new lucrative technologies together with the universities that become "engines" of their regions. Massay et al. (1995) talk about an approach to industry-university quality partnerships for engineering education. According to Urry (1998), higher education institutions had to be restructured in order to be productive and competitive, and should have organizational networks to fulfill the need for specialized labor and to provide linkages with industry. Carayannis et al. (2000) indicate that the linkage between theory on knowledge management and strategic management provides a framework for understanding the imperative for collaborative research partnerships, particularly those involving government, university and industry actors. In this context, the "Triple Helix" can be mentioned. The thesis states that the university can play a major role on changing and improving increasingly knowledge-based societies. Etzkowitz and Leydesdorff (2000) defend that the previously isolated institutional social spheres of university, government and industry have become increasingly intertwined. Dinçer and Rosen (2001) present that there is a strong need to concentrate the efforts in developing right policies and strategies to assess the impact of science and technology on national development; to develop mechanisms in bringing government, industry and university together for research and development and innovation; and to accelerate commercialization. Leydesdorf (2003) mentiones the triple helix dynamics. In the analysis, he introduced the relations between the institutions and government sectors, which could be measured as variables and probabilistic entropy while using dynamic fluxes basing on infrastructure support. Leydesdorff and Meyer (2006) emphasize on three selection environments in the triple helix model namely wealth generation (industry), novelty production (academia), and public control (government). Worasinchai et al. (2009) study the role of knowledge flow in the triple helix model. The triple helix model was a spiral model. It underlines the importance of contributing to the interactions between academic, industry, and government. Viale and Etzkowitz (2010) introduce anti-cyclic triple helix. They propose a turning point of research and innovation policy in Western countries, with apparent contradictory effects. The result of study emerged that to support the academy-industry relationship was unavoidable. Perkmann et al. (2011) state how universities' research quality shapes their engagement with industry. Based on the literature, it is certain that the universities are not only teaching institutions, but also contribute to technological developments and sustainable economic growth of a country. It is expected that higher education institutions should be engaged with innovation and entrepreneurship activities through collaboration industry and government. In this collaboration, government must play a major role for supporting universities through incentives to create inventions in new technologies and industry provides funding to higher education institutions for research projects. As a result, universities should effort to the collaborations of government and industry that are regarded as a significant element of catching the new trends in higher education area.

3.8. Information Technologies and Distance Learning

It is clear that knowledge is an inevitable necessity for all human activities. For this reason, our contemporary societies are called networked knowledge societies. All individuals and enterprises need to use and update knowledge to perform well in their activities. Higher education institutions are very important places to obtain and update knowledge. Välimaa (2011) said that higher education institutions might act as important nodes of knowledge networks because of their intellectual and material resources. As an important part of society, higher education institutions cannot be considered without information technologies, and therefore, they should support all development in information technologies. Moreover, it must be emphasized that information technology in its various forms is well-placed to assist education institutions to become more competitive within international markets (Mazzarol et al., 1998). Higher education institutions must seek methods to respond to such demands by offering convenience and reducing time spent on activities. If the universities do not research new ways, their competitors will have advantages. Technology offers students more options with greater flexibility in relation to when and what they want to learn. Online programs provide many alternatives to the traditional education institutions. The implementation of long-distance learning breaks down the traditional geographic barriers and extends curriculum offerings that might not be accessible to students (Chen, 1998). Therefore, distance learning is a major substitute of higher education institutions. Many international educational institutions can be accessed through distance learning, by which students can earn a degree, and this represents a potential threat to existing higher education institutions (Huang, 2012).

4. CONCLUSION

Higher education represents a critical factor marking innovation capability and human capital development of any country. It plays a central role in the success and sustainability of national development. Hence, universities have become increasingly important in national agendas and have undergone profound mutations and reforms worldwide over the past few decades. Altbach et al. (2009) say that an academic revolution has taken place in higher education in the past half-century, marked by transformations unprecedented in their scope and diversity. Higher education is now facing many challenges arising from the impacts of globalization and the growing importance of knowledge and communication. With so many different developments, higher education institutions are now more influential than ever and they are in a new approach symbolizing the shift from the traditional to the modern aspects.

Nearly 50 years ago, higher education only referred to the traditional teaching and research universities. However, this picture is completely different today. Several developments have contributed to redefining the model of the "ivory tower." Nowadays, higher education institutions are more diversified. They are close to a larger segment of the population instead of to just an elite group. Several trends have contributed to reshaping the model of traditional universities. "Ivory tower" universities attended by the elite are closer to a patchwork model attended by larger segments of people.

Nowadays, higher education is characterized by massive expansion, more diverse profiles of higher education institutions, programs, and their students, greater internationalization and globalization, wider participation in lifelong learning, private education institutions, all thanks to the effects of the emergence new players, growing pressures on costs, and new forms of financing and management, collaborations, and more integrated use of communications and educational technologies.

As a result, higher education systems and institutions are facing a new paradigm, which has transformed them from holding traditional views to newer, modern ones. They have especially reshaped the impact of factors listed above. To reinterpret and redefine the higher education scenario, the academic world needs a thorough understanding of all new approaches in such a transformation process. Therefore, in this article, in order to provide better understanding, the major issues about the developments and trends in higher education are outlined under the eight items, based on the available literature.

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