Investigate How Changes in Exports, Remittances and Fdi and their Impacts on Reserves After Currency Floating. (Case Study: Turkey)

DoaaWafik Nada, Assem Tharwat

ABSTRACT--- Currency devaluation is a monetary policy followed by some countries for variety of reasons, such as achieving a specific exchange rate objective or reviving competitiveness in the global market. The reasons for adopting currency devaluation differ from country to country and the results are as well influenced by several internal factors related to the economy and politics of the state or even external factors. In this paper, we will investigate how currency devaluation of the Egyptian pound could cause a positive effect on the Egyptian total foreign reserves minus gold. In addition, we will draw on the Turkish experience in devaluation and then provide recommendations on how to increase the positive impact of devaluation on the Egyptian total foreign reserves using time series data from 1985 to 2016 derived from a multiple linear regression model for Turkey. After analyzing the results, we found out that exports are the most important factor in supporting foreign reserves and are highly benefiting from the decision of floating the currency, taking into consideration that each country has different conditions therefore this experiment will beconsidering generating policies fitting Egypt.

Keywords: Devaluation, monetary policy, Egyptian pound, foreign reserves, multiple linear regression models, Turkish experience

1. INTRODUCTION

1.1. Devaluation

The country's monetary policy determines whether there is adecline in the value of its currency and this is applied by the Central Bank when announcing the release of free to market forces (supply and demand) to determine the price of its local currency against others in the foreign exchange market.It is true that the negativity of devaluation results in inflation which can be caused by higher import costs, lower productivity and efficiency of local firms due to lower competitiveness after reducing imports, increasing foreign currency debt, scaring international investors away after depreciation of their property and then it would be difficult to keep them and gain back their trust especially if there are foreign laborers. This means that the country must be very careful when making currency devaluation decisions because in order to reduce the effects of inflation, the companies should not pass the increase in import costs to consumers and reduce their profit even if in the short term and accompanied by higher prices and increase wages.

However, there are still many countries who believe that they could get several benefits from the process of currency devaluation, especially for boosting the demand of their products in the external markets which could cause an improvement to the county's situation as a whole. The main reason behind some countries devaluating their currency is mainly to promote their exports in the global market where the prices of products become less expensive than before, making exporting countries such as China and India are racing to devalue the currency of the so-called race to the bottom.Another aim is to gain balance of payments by shrinking the trade deficits which will be a result ofincreasing exports and then imports will become more expensive causing them to drop. Moreover, devaluation would help reduce the value of sovereign debt provided that there is no large number of foreign bonds. Finally, the increase in the exports and aggregate demandwill push towards higher economic growth rates. In addition, currency devaluation is followed by many developing countries as a way for stabilizing their economy and is supported by the International Monetary Fund, which in its turn included other conditions such as increased taxes, interest rates and lower domestic expenditure and credit. Making the choice of the appropriate exchange rate is one of the most important economic factors to increase growth and maintain stability;however there is no specific system that is ideal for all countries. Is it important to note that the impact of the exchange rate is not only different from one country to another, but it is evendifferent among the various sectors within the same country and the reasons behind that iselasticity of demand and capital intensity.Moreover, there are some positive determinants of the decision to devalue the currency and this will only take place when certain factors are met. These include whether the business cycle situation is stagnant, the demand is flexible in the short term which would expedite the improvement of the current account. Also, if the competitiveness of domestic products is weak, this will boost exports as demand increases after devaluation if the country's trade and production structure and the volume of openness to international trade are large.

Moving on, the depreciation of the currency encourages the mandatory consumption of the domestic goods and the reason is because all the imported items now became more

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expensive and might not even be available anymore. This concept also supports domestic tourism because travelling abroad will be costly as well as focusing on domestic products being exported to global markets. Regional economic blocs like the European Union, the North American Free Trade Agreement (NAFTA) and the Association of Southeast Asian Nations (ASEAN) have created markets that support member exports, pushing them to stabilize their exchange rate and even activate a common currency as in the euro group (Husted et al., 2013). In the process of currency floating, the expected question will be what is the most important independent factor that has the biggest positive impact on the size of foreign reserves in Turkey? After analyzing the Turkish model and going through its estimation and regression analysis, we expect that exports will be the most important independent factor as the Turkish economy depends on the structural school which focuses on investments then production then export and finally on tourism, whose revenues are considered part of the export earnings. In addition, since both Egypt and Turkey have faced similar economic problems as well as them having similar points such as surface area and population, therefore we believe that Egypt can certainly take the path of Turkish economic reform.

1.2. Egypt Before Devaluation

In January 2003, the Central Bank of Egypt announced the floating of the pound where it shifted from maintaining a fixed exchange rate adjustable while the dollar continued to rise to about 14% with increased foreign reserves from 15 billion dollars to 35 billion dollars. After the global economic crisis that occurred between September 2008 and March 2009, foreign demand for goods and holdings of foreign securities decreased from 32 billion pounds to one billion pounds. The Central Bank intervenes until stabilizing the exchange rate, which fell to LE 5.62 Egyptian.

The stability of the exchange rate since 2005 is the result of the continuous interference by the Central Bank. Despite the increase in growth, the accumulation of foreign reserves, high inflation and the food crisis, the exchange rate remained settled. Interest rates continued to rise to attract foreign inflows and monetary policiestargeted reducing inflation, increasing reserves and managing the exchange rate.The years following the revolution in the Egyptian pound are divided into three main eras: the first eratook place between 2011 and 2013, the second between 2013 and 2016 while the third era started in 2016 and continues till today.During the first era, foreign exchange through Suez Canal decreased by a total deficit of 0.9 billion dollars but on the other hand, foreign exchange improvedbecause of direct foreign investment, exports, remittances and foreign loans with a total increase of 15.4 billion dollars, while the foreign exchange reserves came down from 20 to 5.15 billion dollars in May 2012, the value of the pound collapsed and the black market emerged. One of the main reasons this happened was the unavailability of capital, investments and the transfer of profits like Orascom Group for Industry and Construction. According to the IMF website, this happened because Egypt is enjoying a large measure of freedom due to the capital movement which even surpassed Brazil, China and Chile. Furthermore, the Central Bank tried to impose restrictions such as maximum credit card withdrawals, currency swaps and successive governments turned to increasing foreignborrowings.The second era which started from2013 and ended in 2016 isknown as the crisis of the dollar where the price doubled on the black market and the revenues of most of its sources decreased despite the high volume of foreign investments.The value of the dollar continued to rise even when the balance of payments was in surplus and this was mainly because of the exit of foreign currency in the form of premiums, interest on loans and external debt service.Here, the Central Bank resorted to short-term and medium-term borrowings in order to cover foreign reserves. This situation lead to further borrowings until the payment of loan installments and invoices for the import of wheat, fuel and industrial inputs and the main aim was to prevent further inflation. Finally, the third era which continues till today started when the Central Bank announced its decision to float the Egyptian pound and that happened on the 3rd of November of the same year. With this decision came several objectives such as solving the crisis of foreign reserve shortage and the elimination of the black market.This caused stability in inflation rates between 10 and 11 percent and reduced budget deficit as well asfurther increase in exports and promotion of investments. It was noticed by the Central Bank data that following one year of the flotation decision, the net foreign assets reached a peak of LE 82.3 billion after it was negative (Hussein, 2016).

1.3. Following the Devaluation in Turkey

In the year 2000, the political and economic problems that Turkey had suffered from accumulated, in particular the collapse of the financial market, the total reliance on foreign investment and the huge budget deficit. To solve its problems, Turkey made all efforts to ensure borrowings from the IMF in that same yearbycommitting itself to implementing all the conditions of the fund using the economic structural reform programwhich included the elimination of subsidies on commodities, floating the currency and adopting strict austerity policies. Then on the 22nd of February 2001, the Turkish lira was floated.

Following the floating decision in Turkey, the dollar rose by 69.8% against the lira right from the first day while the interest rate reached 3000% and the Central Bank lost 5 billion dollars of its foreign reserves due to the increase in demand for the lira. However, the economic turmoil increased in the first 8 months of 2001, inflation rose to 70 percent and half of Turkey's banks went bankrupt.Lira floating resulted in the Turkish economy depending more onattracting foreign investors and to make this achievable, many government controls were reduced and even eliminated. Turkey's foreign borrowing from Western banks increased and the country's foreign debt reached $112 billion in March 2002. During this period, turkey focused on promoting privatization, patents, investment, transportation, agriculture, livestock, energy, mining, communications and tourism. Also,Turkey paid high attention torestructuring its

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financial system and this lead to the policy of export development, encouraging production and industrial innovation and increasing its public spend on scientific research programs.On the 3rd of October 2004, Turkey decided to delete six zeros from its currency and issue the new Turkish lira which was then renamed the Turkish lira again in 2008. Turkey's economy rose by 5.4% in 2001, 9.5% in 2004, 8.4% on 2005, 6.8% on 2006 and 4.7% in 2007.Following that, the signs of the universal economic disaster began to show in Turkey where the development rate dropped and reach 0.7% in 2008 and there was agrowth decline by 4.8% in 2009. However, this wasregained back to9.2% in 2010 and 8.8% in 2011when Turkey became the second major economic growth on the world after China (Akat and Yazgan, 2012).

2. LITERATURE REVIEW

2.1 Exchange Rates in Research

The association among foreign exchange funds along with the foreign exchange rate started to attract researchers since the 1960s and it had become a crucial part of studies during the next 40 years.To start with, Agarwal (1971) believed that a balance of foreign exchange funds required a fixed exchange system whileGirton and Roper (1977)made the required modificationon the exchange percentage leading to adjustments madeon foreign exchange fundswhichwas believed to be due to excess supply or demand for local currency in foreign markets.

In a research conducted by Frenkel in 1978 found out, the increase in foreign exchange reserves was driven by insurance against financial crises and in his 1983 study, he discussedthe diversion of the drainage system to floating exchange rates which was believed to reduce the foreign exchange reserves and this conclusion was drawn based on the collapse of the Bretton woods system.Moreover, Friedman (1986)investigated both the balance and imbalance in the level of foreign exchange reserves and he proved that these were due to the size of the Central Bank's transaction of foreign markets.In 1995, Weymarkdecidedthat under the floating exchange rate system, the foreign exchange reserve will change and thus there would be an increase in the supply and demand of the local currency.In the first decade of thenew millennium,it wasnoticed that therewas a negative associationamong foreign exchange funds and exchange percentage volatility (Xu, 2001).After further studies related to the fear of exchange percentagevariationsonemergingnations, Rajan (2002) stated that that had prompted them to own huge assets of foreign exchange reserve whiledeveloping countries were said to suffer from unstable exchange rate as a consequence of the fluctuation of the foreign exchange reserves in their Central Banks (Reinhart, 2002).Furthermore,Marion andAizenman(2002)proved that when exchange rate fluctuations increase, foreign exchange reserve holding decreaseand in 2006,Smyth and Narayanstated that there was a strong and optimistic association among the realexchange percentage and foreign exchange reserves but only in the long run.Following that was Gonzalea and Cady(2007)'sconclusion that increasing the adequacy of foreign exchange reserves would support lower exchange rate volatility whilePrebheeshandMalathy(2007)discovered the interrelationship between short term accumulations of foreign exchange and capital flows where they have found out that the reserves effectson the capital flows which was earlier explained byYi in 2007, where he stated thatthe degree of dependence on imports is one of the most important determinants of foreign exchange reserves. In the same year,Choi andBaek(2007)discussed the inverse relationship among exchange percentage flexibility and foreign exchange reserve balance then following thatPaladino andCifarelli(2008)provedthebig and positive effect of the interest rate and the exchange rate in the United States which has an influence on the increase of its Central Bank's demand for foreign exchange reserves.

Moreover,AyhanandKasman(2008)showed that there would be no relationship between exchange rates and foreign exchange reserves in the long run.In a study conducted by AizenmanandRierain 2008, the concentration was onthe industrialized countrieswhere theyhave found the impact of hot money to be greater and to have more importance on exchange rate change than on foreign exchange reserves.Moving on, studies showed the indirect effect of foreign exchange on the power of policy by proving that increasing foreign exchange reserves reduces the power of policy (Reinhart and Reinhart, 2008) and that in an exemplary market economy there is a relationship between macro policy and foreign exchange reserves decisions (Liao, 2008).

A conclusion was drawn on the lower exchange rate claiming it supports the accumulation of foreign exchange reserves (Chiu, 2008)and in addition, RebeloandVegh(2008) proved that many countries have abandoned the fixed exchange rate despite excess foreign exchange reserves in their central banks.It is also believed that there are explanatory variables in the macro economy that are motivated to increase the assets of foreign exchange reserves such as trade openness, GDP, export volatility and interest rate spread (Chee and Wan, 2009). Just recently, it was shown in Ito andChim(2010)'s research that if the foreign exchange reserve increased above 24% of the GDP, then it would prevent exchange rate change and lead to stability. Chinn, Aizenmanand Ito (2010)further analyzed foreign exchange components and found out that its reserves exceed its impact not only on the exchange rate, but also on the determination of the type of exchange rate system and it is believed that there is a long-term associationamong foreign exchange reserves and the exchange percentage (Hoshikawa, 2012).

Nicholas Wright 2013, utilized theMacroeconomic Balance (MB) and the Natural Real Exchange Rate (NATREX) approaches to inspect the two proportions of the balance genuine swapping scale, this investigation controls for business cycle impacts and the obligation supportability. The discoveries propose that therewere a few interims of conversion scale misalignment for every nation, including Jamaica, overthe 1990-2010 examination period. The

swapping scale misalignment arrangement was observed to be stationarywhich means that there is a long-run harmony mean and a steady change forconversion scale misalignment.In respect of Euroization of fiscal framework in Kosovo it was discovered that this activity created large scale - monetary steadiness as far as swelling and value change. Nonetheless, as far as microeconomic angles, the one-sided adjustment of Euro as the official cash of Kosovo neglected to give microeconomic favorable circumstances, (FlamurBunjaku, 2015).

An investigation utilizes the Generalized Method of Moments (GMM) to appraise financial development condition to look at the connection between conversion scale routines and yield development in Nigeria in various periods from 1970 to 2014. Conversely with past discoveries, our own investigation firmly proposes that swapping scale routines without a doubt matter regarding genuine monetary execution in Nigeria as the outcomes uncover that deregulated conversion scale routine goad financial development in Nigeria as against the entire time frame and settled conversion scale routine. (Kenneth O. Obi et.al. 2016)

In 2018 Ephraim Matanda, displays the effect of dollarization on development and improvement of rising economies with explicit reference to Zimbabwe's involvement in the period, 2009-2018. The exploration think about investigates the hypothetical and observational proof drawn from nations of the world that dollarized for different financial reasons. The examination utilized an enlightening review configuration to break down the exploration information drawn from the field on the effect of dollarization on monetary development and improvement prospects of dollarized rising economies. It was discovered that dollarization was basic in diminishing high swelling and joblessness rates to worthy dimensions, expanded total free market activity, the (GDP), and expectations for everyday comforts of the nationals of creating countries. The investigation inferred that dollarization contributed fundamentally to the development and advancement of most rising economies of the world.

2.2 Comparing Egypt and Turkey before Devaluation

As they say, all roads lead to Rome and here as well, if we replace Rome by the floating currency, we will notice that the roads of Egypt led to the same results as Turkey's.Both of them reached the same size of the foreign reserves as shown in Fig 1, however, the difference is in Egypt'sreliance on the interest rate and control of money circulating after adopting monetarism in its economy while Turkey relied on the classical monetary school, which provided a real source of hard currency from investment and then production and export. Due to this, we believe that the beginning of Turkey in the flotation of the currency is similar to the start in Egypt in terms of foreign exchange statistics But Turkey is on track ("The EPG Devaluation," 2017).

The below table shows the difference in the reserves minus gold between Egypt and Turkey in the years before the floating began:

Years before Floating	Egyptian Total Reserves minus Gold (current US$)	Turkish Total Reserves minus Gold (current US$)
16	12,925,785,866	1,055,929,262
15	13,242,410,924	1,411,594,877
14	13,588,732,090	1,775,836,939
13	14,273,202,432	2,344,492,888
12	20,609,055,556	4,780,460,641
11	24,461,556,812	6,049,535,118
10	30,187,706,024	5,144,174,312
9	32,216,142,299	6,159,412,667
8	32,252,965,329	6,271,512,909
7	33,611,731,752	7,169,312,962
6	14,915,683,532	12,441,845,319
5	11,627,543,645	16,435,819,484
4	13,608,098,010	18,658,335,762
3	11,995,216,166	19,488,809,981
2	13,282,026,843	23,345,860,898
1	20,858,153,236	22,488,441,169

Table 1: Egyptian and Turkish reserves before Floating.

The below figure shows the total reserves in the two countries 16 years before the floating occurred:

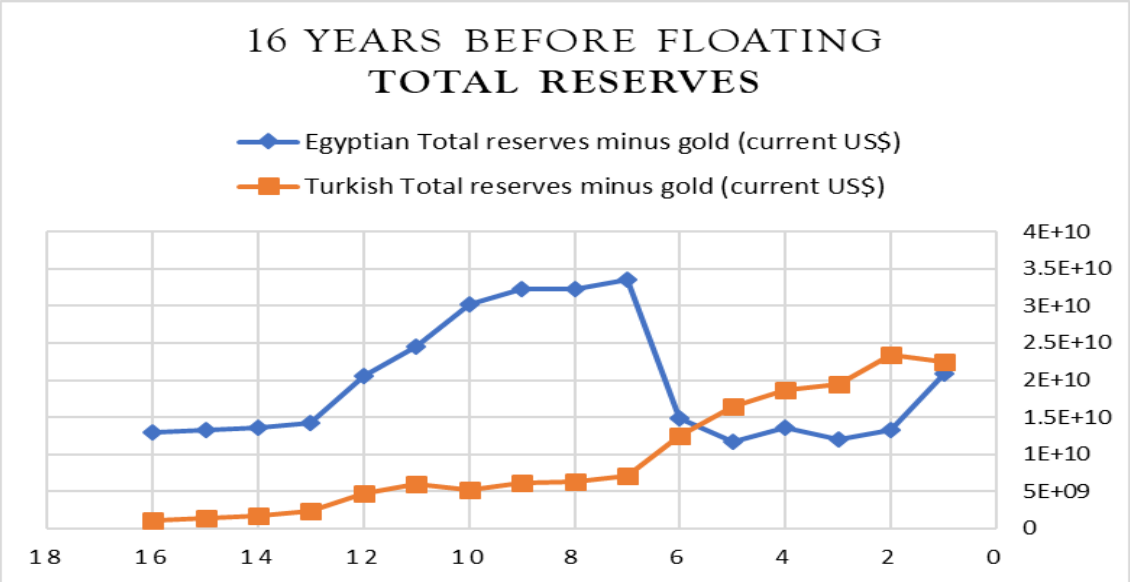

Fig 1: Comparing Total Reserves between Egypt and Turkey 16 years before Floating

2.3 Exports of Goods and Services

Exports are the main source of hard currency and foreign reserves. Each country specializes in many industries that are particularly profitable for them because they have a competitive advantage while they prefer toimport the rest of their needs which could be less costlycompared to their production. This is an important consideration so that the cost of imports does not exceed the export earnings.

In the table below, the Egyptian exports of goods and services before floating were compared to those of Turkey's and it was noticed that Turkey was more advanced than Egypt at this point.

Years before Floating	Egyptian Exports of Goods and Services (current US$)	Turkish Exports of Goods and Services (current US$)
16	17,065,868,263	10,663,948,826
15	16,090,888,013	10,081,244,162
14	18,074,562,536	13,582,253,229
13	22,257,964,940	16,947,657,046
12	27,213,830,088	17,360,346,518
11	32,191,268,336	20,138,041,278
10	39,469,535,055	20,765,547,619
9	53,800,000,000	22,805,811,594
8	47,163,995,068	24,636,054,545
7	46,731,006,458	27,918,206,081
6	48,539,511,507	33,713,478,166
5	45,808,657,936	39,094,658,477
4	49,111,159,371	46,664,617,512
3	43,520,045,901	56,721,035,673
2	43,862,395,687	47,537,824,737
1	34,442,761,209	53,091,138,836

Table 2: Egyptian and Turkish Exports of Goods and Services before Floating

The graph below compares the exports of goods and services in both Egypt and Turkey 16 years before floating happened:

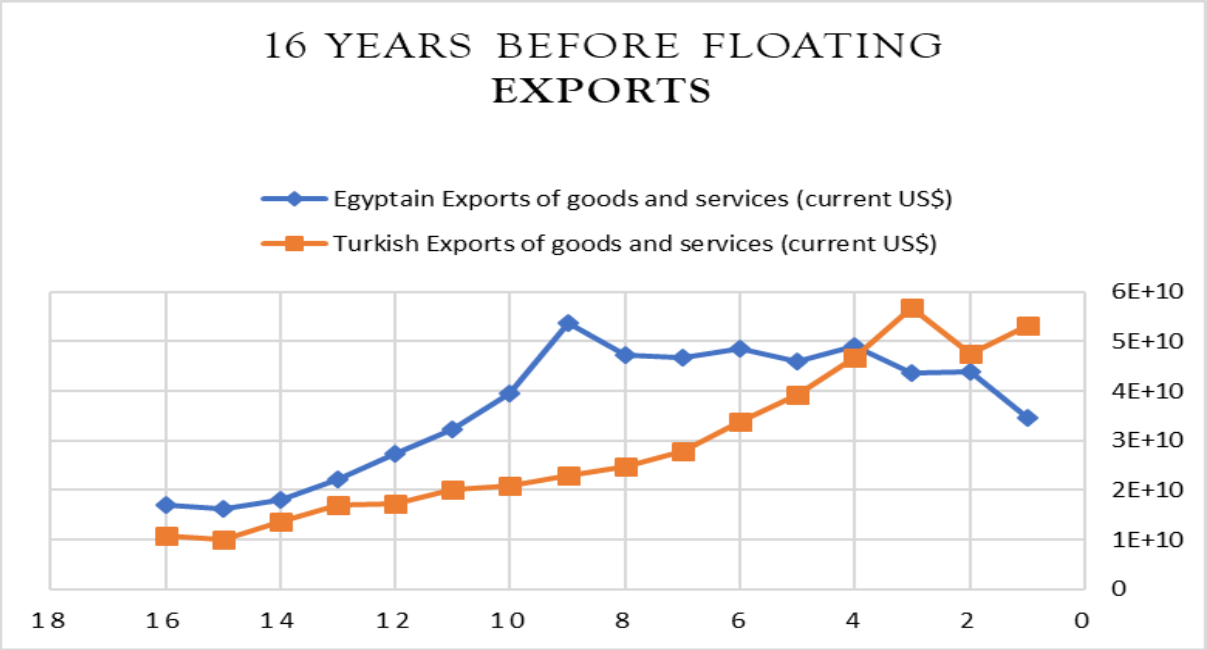

Fig 2: Comparing the Egyptian and Turkish Exports of Goods and Services before Floating

2.4 Personal Remittances Received

Workers' remittances are a secondary source of hard currency which the country can benefit from it. It is very important that the human capital is well taken care of so that it qualifies to the extent that makes its citizens wanted in other countries. However, it should also be keen that those citizens act as a surplus to the needs of the local labor market so that there is no brain drain and then the black market must be eliminated. Below, we compare the largest share certainly for Egypt as the chart shows (Todaro and Smith, 2012).

Years before Floating	Egyptian Personal Remittances, Received (current US$)	Turkish Personal Remittances, Received (current US$)
16	2,911,400,000	1,714,000,000
15	2,893,100,000	1,634,000,000
14	2,960,900,000	2,021,000,000
13	3,340,700,000	1,776,000,000
12	5,017,300,000	3,063,000,000
11	5,329,500,000	3,246,000,000
10	7,655,800,000	2,819,000,000
9	8,694,000,000	3,008,000,000
8	7,149,600,000	2,919,000,000
7	12,453,100,000	2,627,000,000
6	14,324,300,000	3,327,000,000
5	19,236,400,000	3,542,000,000
4	17,833,100,000	4,197,000,000
3	19,570,400,000	5,356,000,000
2	18,325,400,000	4,533,000,000
1	16,590,000,000	4,560,000,000

Table 3: Egyptian and Turkish Remittances Received before Floating

The below graph shows the difference between the Egyptian and Turkish Personal Remittances:

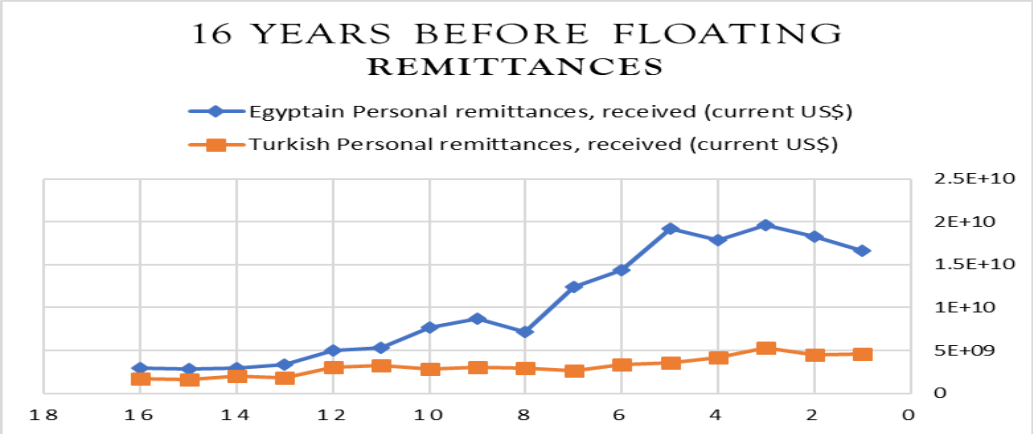

Fig 3: Comparing Egyptian and Turkish Remittances Received before Floating

2.5 Foreign Direct Investment and Net Inflows

For countries to benefit from FDI / MNCs, there are certain conditions to be met. To start with the contracts of these companies should be non-monopolistic because these types of contracts reduce competition in the domestic market and most of the profits must be reinvested. These companies should rely heavily on local products in the intermediary and capital goods rather than importing them from the country of the parent company. Furthermore, it should rely on local labor and provide training programs for them in order to improve their skills. Another important point is that the tax concessions offered to these companies should be limited in value and time.Below is a comparison between Egypt and Turkey in the Foreign Direct Investments and Net Inflows before floating occurred:

Years before Floating	Egyptian Foreign Direct Investment and Net Inflows (current US$)	Turkish Foreign Direct Investment and Net Inflows (current US$)
16	509,900,000	99,000,000
15	646,900,000	125,000,000
14	237,400,000	115,000,000
13	1,253,300,000	354,000,000
12	5,375,600,000	663,000,000
11	10,042,800,000	684,000,000
10	11,578,100,000	810,000,000
9	9,494,600,000	844,000,000
8	6,711,600,000	636,000,000
7	6,385,600,000	608,000,000
6	(482,700,000)	885,000,000
5	2,797,700,000	722,000,000
4	4,192,200,000	805,000,000
3	4,783,200,000	940,000,000
2	6,884,800,000	783,000,000
1	8,106,800,000	982,000,000

Table 4: Egyptian and Turkish Foreign Direct Investment and Net Inflows before Floating

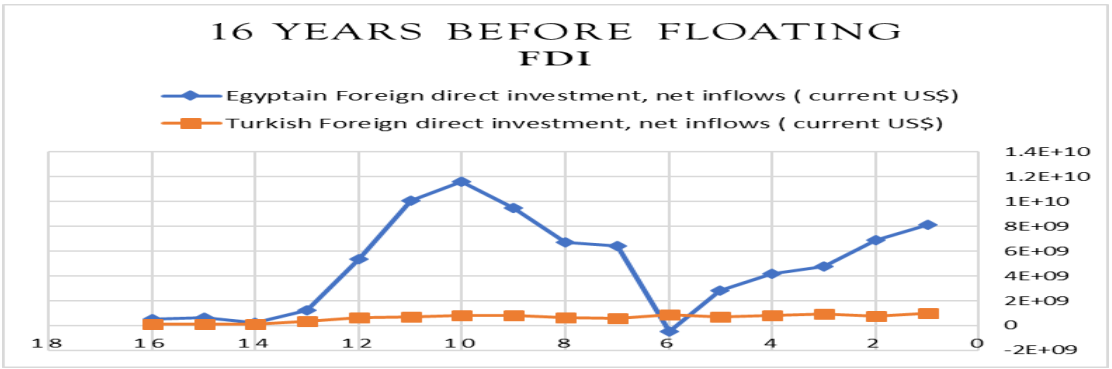

Fig 4: Comparing Egyptian and Turkish Foreign Direct Investment and Net Inflows before Floating

3. DATA DESCRIPTION AND REGRESSION ANALYSIS

3.1. Turkey Before and After Devaluation Model and Time Series Data

Here, we measure the effect of devaluation through determining the impact size for the most important three independent variables " dollar resources "on foreign exchange reserves in Turkey before and then after floating exchange rate in the periods between 1985 to 2000 and 2001 to 2016 respectively, as shown below:

1- Dummy Variable "Devaluation"
2- Exports of goods and services (current US$)
3- 3-Personal remittances, received (current US$)
4- 4-Foreign direct investment, net inflows (current US$)

The General Form of the model:

Total reserves minus gold (current US$)
= **C0** +**C1** Dummy Variable
+**C2** Exports of goods and services (current US$)
+ **C3** Personal remittances, received (current US$)
+ **C4** Foreign direct investment, net inflows (current US$)
+ **residualerror**

3.2 Data Collection

Table (5) measures the effect of devaluation through determining the impact size for the most important independent variables " dollar resources "on foreign exchange reserves in Turkey before the floating exchange rate in the period from 1985 to 2000 and then after floating exchange rate from 2001 to 2016.

Year	Dummy Variable	Total reserves minus Gold (current US$)	Exports of Goods and Services (current US$)	Personal Remittances, Received (current US$)	Foreign Direct Investment and Net Inflows (current US$)
1985	0	1,055,929,262	10,663,948,826	1,714,000,000	99,000,000
1986	0	1,411,594,877	10,081,244,162	1,634,000,000	125,000,000
1987	0	1,775,836,939	13,582,253,229	2,021,000,000	115,000,000
1988	0	2,344,492,888	16,947,657,046	1,776,000,000	354,000,000
1989	0	4,780,460,641	17,360,346,518	3,063,000,000	663,000,000
1990	0	6,049,535,118	20,138,041,278	3,246,000,000	684,000,000
1991	0	5,144,174,312	20,765,547,619	2,819,000,000	810,000,000
1992	0	6,159,412,667	22,805,811,594	3,008,000,000	844,000,000
1993	0	6,271,512,909	24,636,054,545	2,919,000,000	636,000,000
1994	0	7,169,312,962	27,918,206,081	2,627,000,000	608,000,000
1995	0	12,441,845,319	33,713,478,166	3,327,000,000	885,000,000
1996	0	16,435,819,484	39,094,658,477	3,542,000,000	722,000,000
1997	0	18,658,335,762	46,664,617,512	4,197,000,000	805,000,000
1998	0	19,488,809,981	56,721,035,673	5,356,000,000	940,000,000
1999	0	23,345,860,898	47,537,824,737	4,533,000,000	783,000,000
2000	0	22,488,441,169	53,091,138,836	4,560,000,000	982,000,000
2001	1	18,879,204,309	53,222,799,445	2,786,000,000	3,352,000,000
2002	1	27,068,604,095	58,321,175,690	1,936,000,000	1,082,000,000
2003	1	33,990,987,298	69,359,206,476	729,000,000	1,702,000,000
2004	1	35,669,143,453	92,090,930,901	804,000,000	2,785,000,000
2005	1	50,579,001,445	105,387,000,000	1,368,000,000	10,031,000,000
2006	1	60,891,881,640	119,616,000,000	1,833,000,000	20,185,000,000
2007	1	73,383,889,916	143,400,000,000	2,096,000,000	22,047,000,000
2008	1	70,428,064,106	174,469,000,000	2,439,000,000	19,851,000,000
2009	1	70,873,658,129	145,519,000,000	1,834,000,000	8,585,000,000
2010	1	80,712,976,523	157,840,000,000	1,819,000,000	9,099,000,000
2011	1	78,322,384,557	185,345,000,000	1,883,000,000	16,182,000,000
2012	1	99,942,631,728	206,848,000,000	1,881,000,000	13,744,000,000
2013	1	110,927,000,000	211,719,000,000	1,901,000,000	13,563,000,000
2014	1	106,906,000,000	221,999,000,000	1,739,000,000	13,119,000,000
2015	1	92,920,826,755	200,727,000,000	1,395,000,000	18,002,000,000
2016	1	92,054,531,730	189,715,000,000	1,186,000,000	13,343,000,000

Table 5: Total Reserves minus Gold, Exports of Goods and Services, Personal Remittances, Received and Foreign Direct Investment and Net Inflows of Turkey

3.3 Turkish Model Estimation and its Regression Analysis

After conducting the first regression, EViews' results

are demonstrated in the Figure below:

Dependent Variable: TOTAL RESERVES MINUS GOL
Method: Least Squares
Date: 05/23/18 Time: 14:04
Sample: 1985 2016
Included observations: 32

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.91E+09	3.33E+09	-1.176153	0.2498
DUMMY VARIABLE	7.25E+08	3.57E+09	0.202854	0.8408
EXPORTS_OF_GOODS_AND_SE...	0.503113	0.027456	18.32461	0.0000
PERSONAL_REMITTANCES__RE	-0.278363	1.013270	-0.274717	0.7856
FOREIGN DIRECT INVESTMEN	-0.068821	0.232744	-0.295695	0.7697

R-squared	0.986003	Mean dependent var	3.93E+10
Adjusted R-squared	0.983930	S.D. dependent var	3.66E+10
S.E. of regression	4.64E+09	Akaike info criterion	47.49713
Sum squared resid	5.82E+20	Schwarz criterion	47.72616
Log likelihood	-754.9542	Hannan-Quinn criter.	47.57305
F-statistic	475.5131	Durbin-Watson stat	2.518455
Prob(F-statistic)	0.000000		

Fig 5: EView'sFirst Regression Model Results

The data shown in Figure (5) shows that there is a multicollinearity problem since multicollinearity has a strong linear relationship between some or all of the explanatory variables which makes Y unrealistic because the value of R-squared is very high but few significant t-statistics. Furthermore, we also found out an autocorrelation problem which refers to the correlation of error term in the present period with the error term in the previous period.This correlation leads to standard error bias or a wrong statistical significant test as well as wrong confidence intervals because Durbin Watson value would fall in an indecisive area.

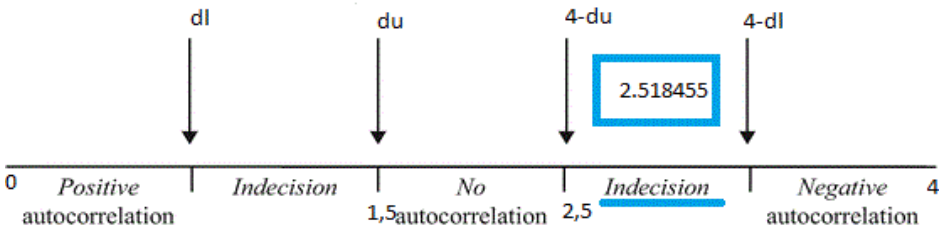

Fig 6: First Regression Presentation

Here, we decided to use the transformation of variables to overcome the multicollinearity problem so we divided all variables on foreign direct investment.EViews' results after second regressions are shown below:

Dependent Variable: TOTAL_RESERVES_MINUS_GOL/FOREIGN_DIRECT
_INVESTMEN
Method: Least Squares
Date: 06/08/18 Time: 04:06
Sample: 1985 2016
Included observations: 32

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.158542	1.267224	-0.125110	0.9013
DUMMY_VARIABLE/FOREIGN_DIRECT_IN...	-8.24E+09	4.22E+09	-1.950317	0.0612
EXPORTS_OF_GOODS_AND_SER/FOREI...	0.660667	0.075664	8.731551	0.0000
PERSONAL_REMITTANCES__RE/FOREIG...	-3.319105	0.476995	-6.958373	0.0000

R-squared	0.795754	Mean dependent var	11.40061
Adjusted R-squared	0.773871	S.D. dependent var	7.251735
S.E. of regression	3.448420	Akaike info criterion	5.430178
Sum squared resid	332.9649	Schwarz criterion	5.613395
Log likelihood	-82.88285	Hannan-Quinn criter.	5.490909
F-statistic	36.36326	Durbin-Watson stat	1.566749
Prob(F-statistic)	0.000000		

Fig 7: EView's First Regression Model Results

In the above results we found out the following:

- Detecting multicollinearity:
  R-Squared=0.795754 {high value}, and all independent variable statistically significant, so according to this rule there is no problem.
- Detecting autocorrelation:
  Durbin-Watson stat=1.566749, so 4-du>d_cal>du in no autocorrelation area where we accept H0 and reject H1, So according to this rule there is no problem

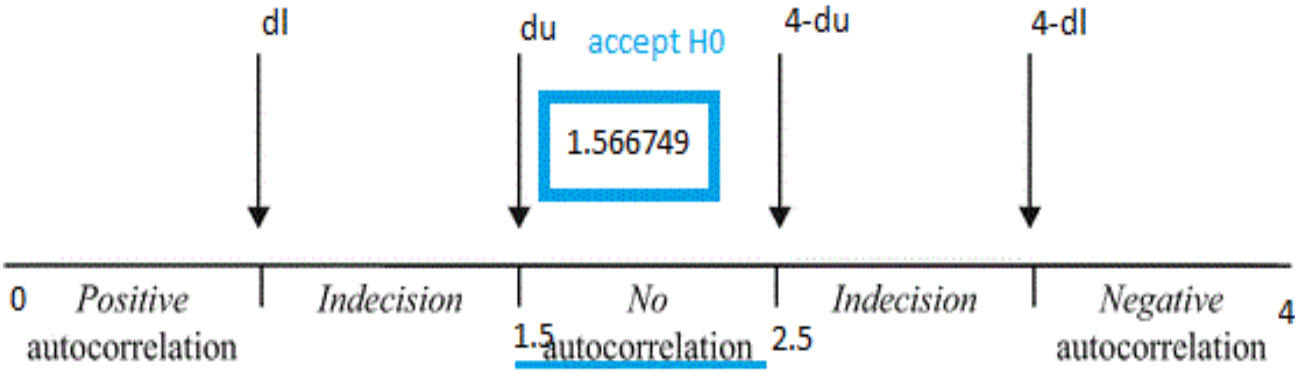

Fig 8: Second Regression Presentation

3.4 Regression Analysis:

The following assumptions were used in the study:

- Economic Assumption:

According to economic priori, we would expect a positive relationship between total reserves and exports, remittances and FDI when any one of independent variables changes. The dependent variable will change in the same direction while holding all other things constant.

- Economic-test:

The estimated results show that:

- C1=7.25E+08, Parameter of dummy variable is a positive valuetherefore the floating of the Turkish currency has positive impact on foreign reserves in Turkey.
  The below figure shows that Turkey's total foreign reserves increased significantly after the devaluation of the Turkish lira in 2001:

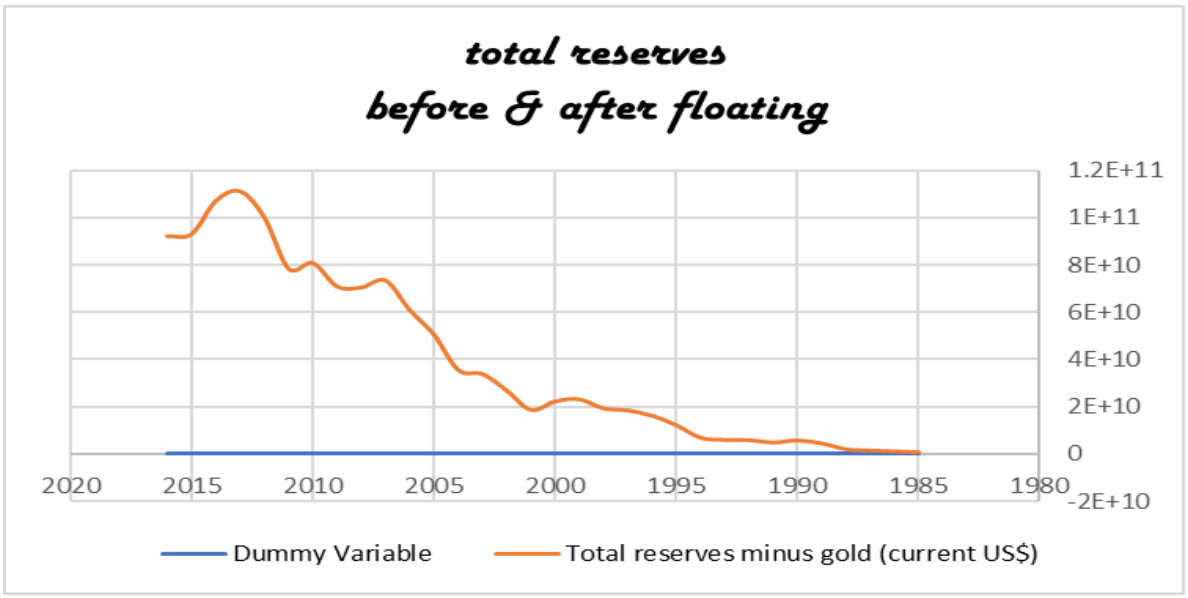

Fig 9: Total Reserve Before and After Floating

Furthermore, C2=0.503113 [the slope of exports of goods and services], is a positive value so it is in accordance with economic priori, implies that when exports changes by 1 unit, reserves will change by 0.503113 unit in the same direction, so it is economically significant. Figure 10 also shows that Turkish exports increased significantly after the devaluation of the currency in 2001, accompanied by a significant increase in total foreign reserves.

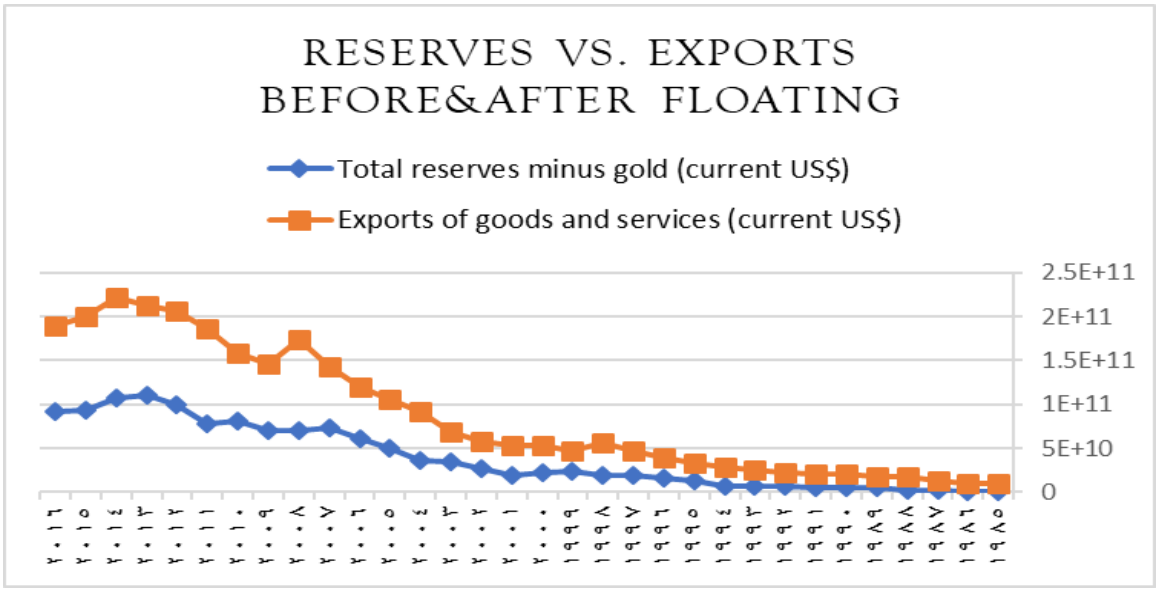

Fig 10: Comparing Reserves versus Exports Before and After Floating

It is important to note that C3= -0.278363 [the slope of personal remittances], is a negative value so it isn't in accordance with economic priori, implies that when remittances changes by 1 unit, reserves will change by 0.278363 unit in the opposite direction, so it is economically insignificant. Looking at Figure 11, we will also notice that workers' remittances did not change significantly after the devaluation of the lira and were never a major reason for the increase in the total foreign reserves after 2001.

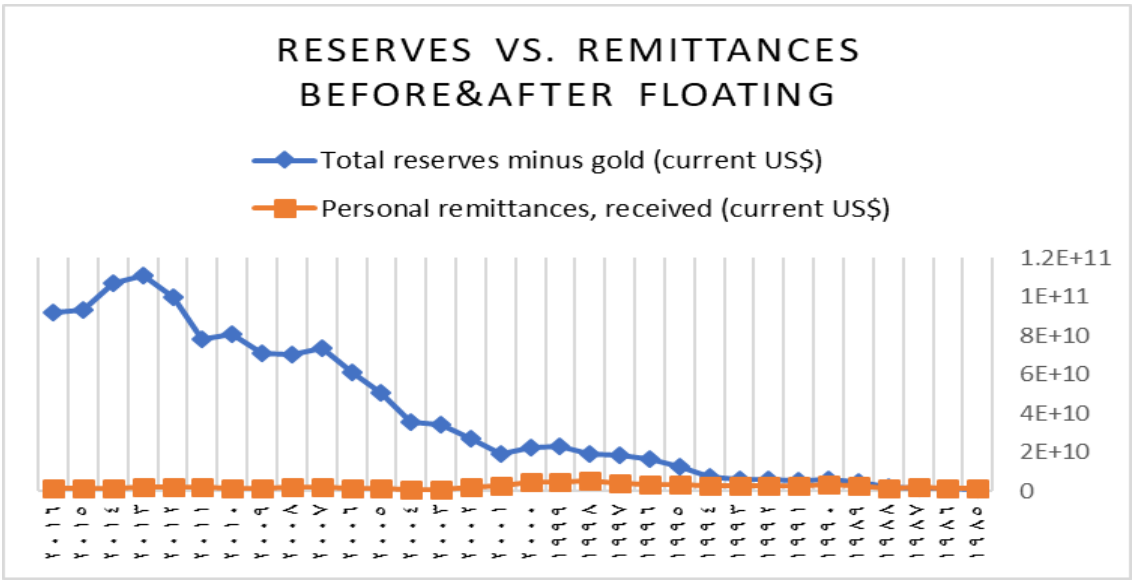

Fig 11: Comparing Reserves versus Remittances Before and After Floating

In addition, C4=-0.068821 [the slope of FDI], is a negative value so it is not accordance with economic priori and this implies that when FDI net inflow changes by one-unit, total reserves will change by 0.068821 unit in the opposite direction, so it is economically insignificant.

Figure 12 shows that the volume of foreign direct investment after the devaluation of the lira was fluctuating and had a somewhat weak effect on the increase of foreign reserves in Turkey after 2001:

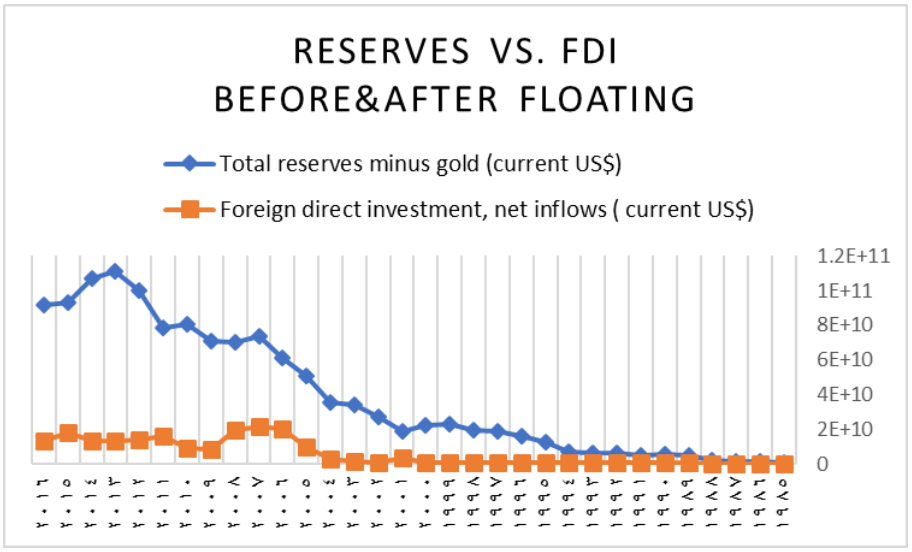

Fig 12: Reserves versus FDI Before and After Floating

After conducting the T-statistic-test, we found out the below results:

- t-C1=0.202854, that less than 2, which mean lies in confident level(CL) area, so we accept H0 and reject H1, this implies that C1 is statistically insignificant.

{H0:C1=0→has insignificant impact
H1:C1/=0→has a significant impact}
Prob-C1= 0.8408>0.1→Insignificant.

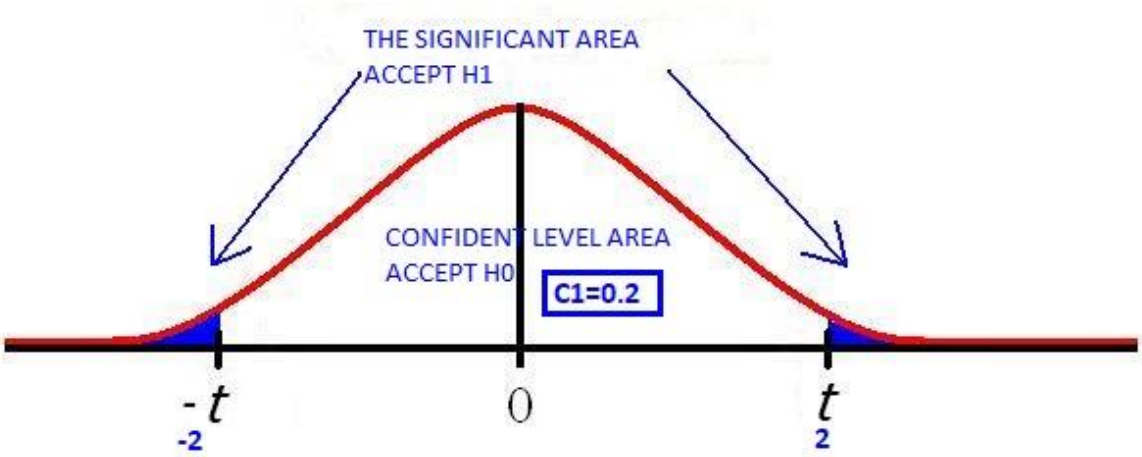

Fig 13: t-C1 Graph

Here, we note that t-C2=18.32461, that is greater than 2, indicates that it lies in the significant level, so we reject H0 and accept H1, this implies that C2 is statistically significant and its value different from zero

{H0:C2=0→has insignificant impact
H1:C2/=0→has a significant impact}
Prob-C2= 0.0000<0.1→Significant.

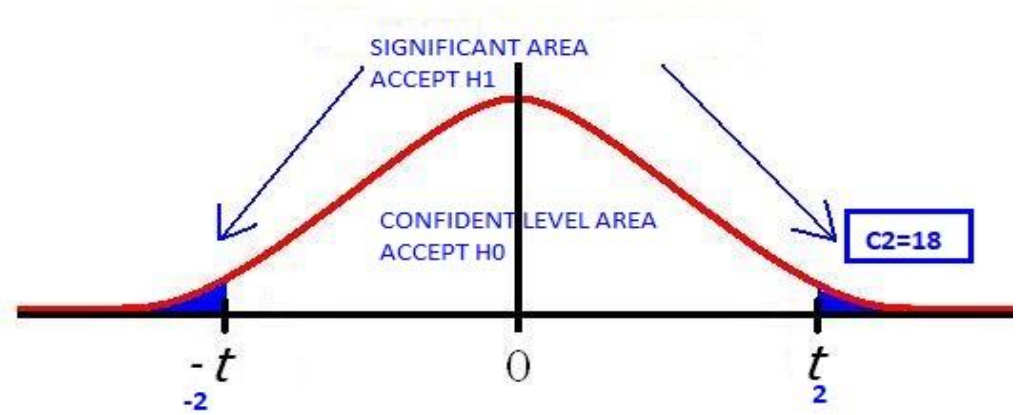

Fig 14: t-C2 Graph

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According to Figure 14, t-C3=-0.274717, that is less than 2, which means it lies in the confident level, so we accept H0 and reject H1, this implies that C3 is statistically insignificant

{H0:C3=0→has insignificant impact
H1:C3/=0→has a significant impact}
Prob-C3= 0.7856>0.1→Insignificant.ib

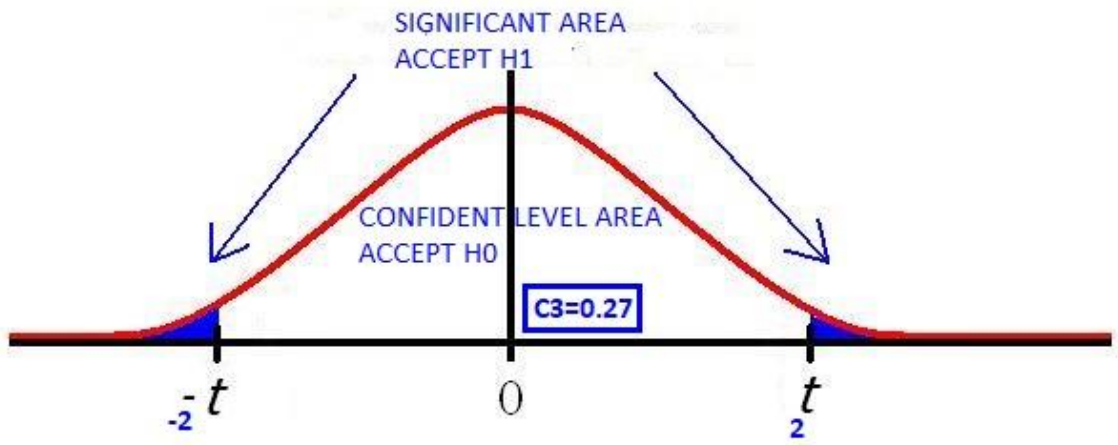

Fig 15: t-C3 Graph

Here, t-C4=-0.295695, that is less than 2, which mean lies in the confident level, so we accept H0 and reject H1, this implies that C4 is statistically insignificant

{H0:C4=0→has insignificant impact
H1:C4/=0→has a significant impact}
Prob-C4= 0.7697>0.1→Insignificant.

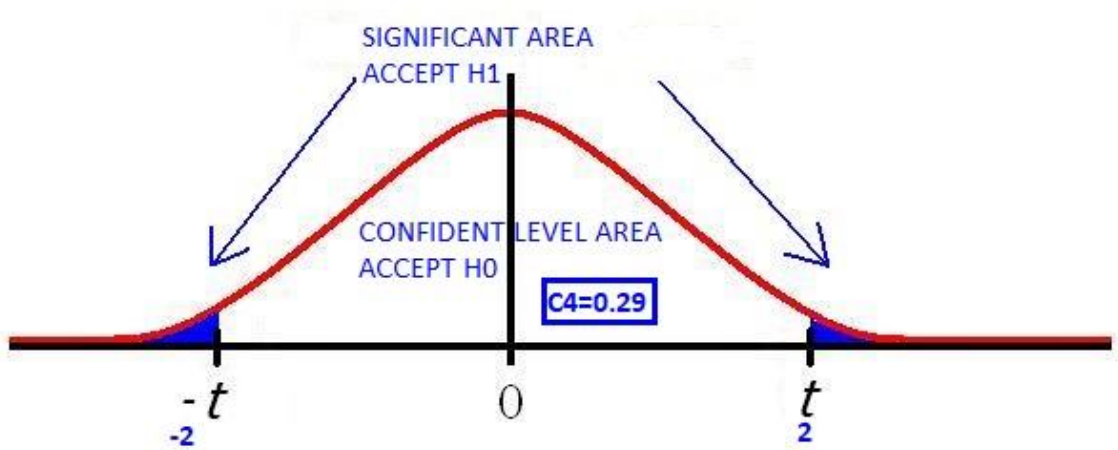

Fig 16: t-C4 Graph

R-Squared=0.986003 which is the coefficient of determination implies that %98 of the change in total reserves is explained by regression explained in the change in exports, remittances, FDI and net inflows. We got a 2% from error term and there are other factors affecting on reserves like external debts. Also, after conducting the F-Statistic test we found out that F-Statistic-test=475.5131 with Prob-F=0.0000000<0.1, so F lies in alfa area, where we accept H1 and reject H0, this means that the model is statistically significant, and the model has good fit for the data and high explanatory power.

{H0:C0=C1=C2=C3=C40→has insignificant impact
H1:C0=C1=C2=C3=C4/=0→has a significant impact}

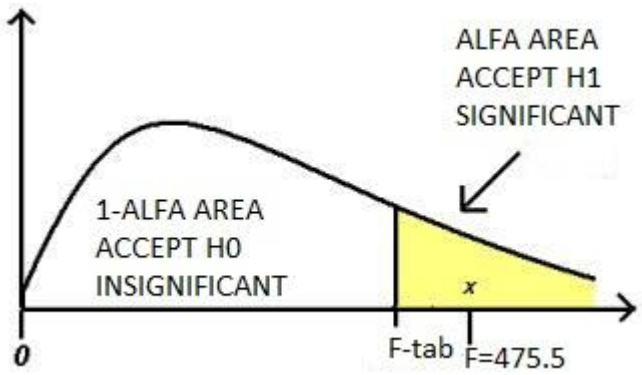

Fig 17: F-Statistic Graph

4. DATA ANALYSIS AND RESULTS

4.1 Data Analysis and Results

To answer the first research question, after the floating of the currency, exports is the most important independent factor that has the biggest positive impact on the size of foreign reserves in turkey.Exports should be relied upon as a major source of foreign reserves rather than remittances or foreign direct investment. As we see in the Table below, the annual growth rate of Turkish exports after the devaluation of the currency increased and then gradually decreased. This decline was the prelude to the global economic crisis of 2009. However, Turkey rapidly recovered to become the second largest country in the world in terms of economic growth after China 2011.

Year	Exports of Goods and Services (Annual % growth)
2001	4.590580972
2002	7.759115498
2003	6.744808819
2004	11.577086460
2005	8.116678719
2006	6.500237460
2007	7.279027943
2008	3.813743763
2009	(3.721321788)
2010	1.666721524
2011	13.448408290
2012	14.891814590
2013	1.073539572
2014	8.154927702
2015	4.296725402
2016	(1.868231576)

Table 6: Annual % Growth for Turkish Exports and Imports between 2001 and 2016

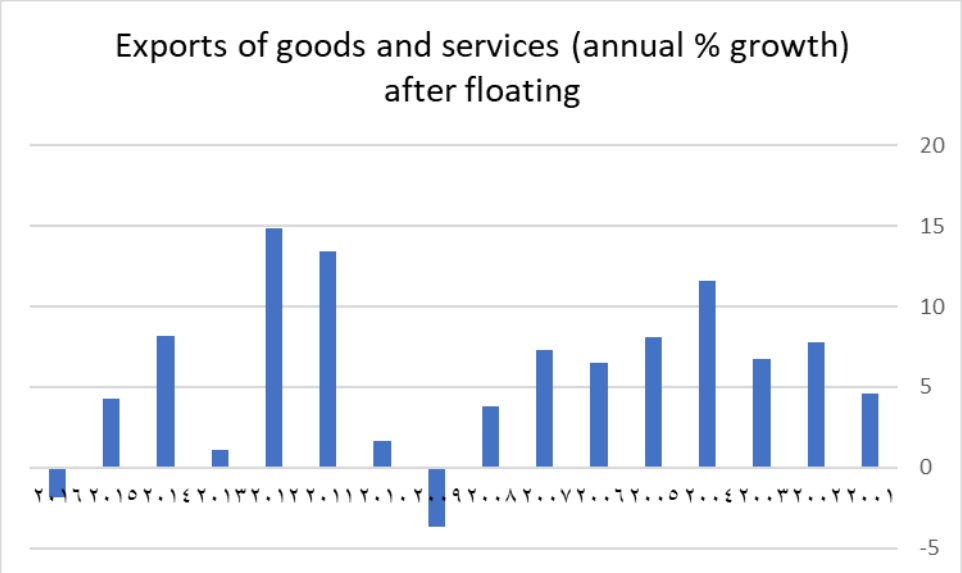

Fig 18: Comparing the Annual Growth of Exports of Goods and Services after Floating

4.2 Agricultural Exports

In general, it is not necessary to rely on the export of products in their primary form because their export after manufacturing increases the added value as well as increases their profits. If there is anything we should propose to Egypt in this regard, it would be exporting an agricultural product where Egypt has a competitive advantage. In addition to that, Egypt should cease the planting of products which costs more than importing them. Consequently, planting of each strategic product that is consumed in large quantitiesrather than them being imported is a better choice. For example, planting cotton seeds in other lands never reaches the quality of the Egyptian cotton. Therefore, it is not only important to export it in its initial form, but in the form of the finest designs that international

brands of clothing follow. Moreover, wheat cultivation for self-sufficiency in principle can be used until the import cost is provided because it is a strategic product and it is consumed in huge quantities, therefore it must be produced even if we do not have a competitive advantage in its production. In addition, the choice of not to grow rice is valid because its cultivation requires large amounts of water and this becomes difficult with the crisis of the water synchronization.As we see in Table 7, the share of agricultural exports from total merchandise exports after devaluation has decreased, however this has not gone below a certain level which means that it is important if the state has a competitive advantage, but it is never a major one.

Year	Agricultural Raw Materials Exports (% of Merchandise Exports)
2001	0.855704714
2002	0.812235772
2003	0.801607839
2004	0.655002395
2005	0.516537803
2006	0.509746521
2007	0.447767896
2008	0.386846422
2009	0.385394322
2010	0.436565683
2011	0.551436785
2012	0.454288629
2013	0.446413827
2014	0.429422546
2015	0.447950597
2016	0.467361644

Table 7: Percentage of Merchandise Exports of Agricultural Raw materials from 2001 to 2016

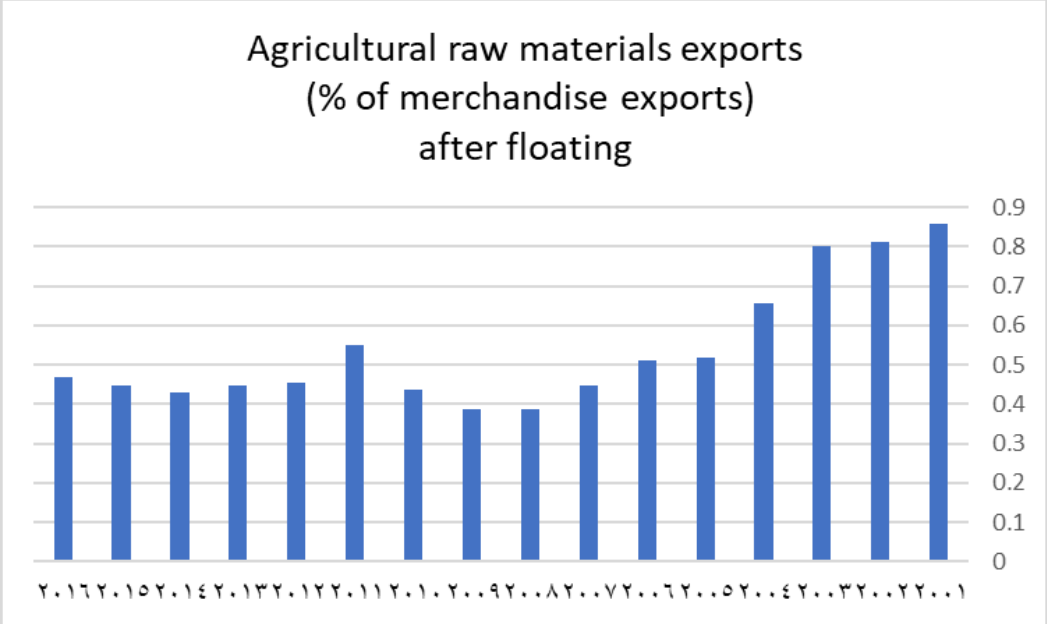

Fig 19: Agricultural Raw Materials Exports(% of Merchandise Exports) from 2001 to 2016

4.3 Medium and High Technology Exports

Here, it is relevant to ensure the productsare produced with high quality because they result in very high profits. Our technology must be kept up to date not only as a consumer but as a producer country and we have to stand out as strong competitors in the international market by our refrigerators, televisions, laptops, cars and even airplanes. As shown in Figure 20, the proportion of high technology exports of all manufactured exports was fluctuating but not less than a certain extent.

Year	High-technology Exports (% of Manufactured Exports)
2001	3.871275
2002	1.789858
2003	1.932464
2004	1.896814
2005	1.474043
2006	1.853989
2007	1.893322
2008	1.616625
2009	1.738497
2010	1.934399
2011	1.839427
2012	1.829741
2013	1.878077
2014	1.935152
2015	2.159703
2016	2.027279

Table 8: High-technology exports (% of manufactured exports) from 2001 to 2016

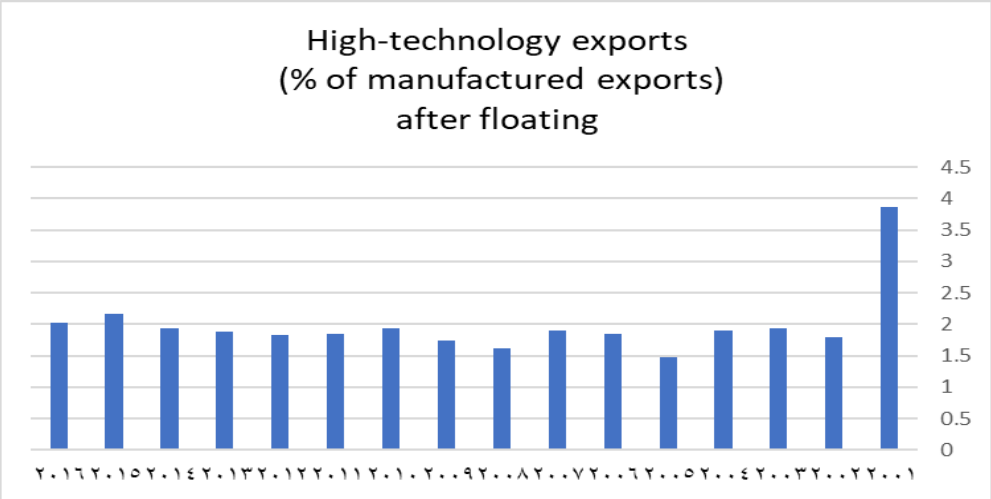

Fig 20: ComparingHigh-technology Exports (% of Manufactured Exports) from 2001 to 2016

4.4 Tourism

Tourism profits are considered part of exports. What people care about when visiting a country isto create beautiful memories that would cause them to revisit it again. For this reason, it is important to show the image of a unique country because the memory of a plastic seat with umbrella in front of a swimming pool in a resort can exist in any other place in the world and would not be a sufficient reason for tourists to consider coming back to Egypt.There are many countries that restrict tourists from some of their actions for example not allowing a bride and groom to take pictures in the antiquarian or Presidential palaces. Another example is not allowing womenwho covered their head in beach shores in Europe.

Moving on, there are some interesting principles associated with tourism. The term tourism for awards means that a specific amount spent in Egypt would result in a stay period free of charge the following year. Moreover, Festivals Tourism means that instead of reclaiming the desert, the sand art festival will be held for artists around the world, instead of the Cairo coloring project. The painting festival will be held for residential buildings and each year will be hosted by a different city in Egypt so that artists around the worldcan benefit from tourism every year.Also, a whole city planted with yellow trees and roses and establishments painted with degrees of the same color, or a whole city that has instead of street furniture a huge number of a swing. Figure 21 below shows the proportion of international tourism receipts from the total exports as volatile as it increases every two or three years, but there was a certain limit no less. Lastly, it is important to develop the ability to take advantage of the problems that might come up in Egypt and not just blame it on the government, instead try to turn it into something positive and this could help improve problematic casessuch as excess labor, rice straw and garbage.

Year	International Tourism Receipts (% of Total Exports)
2001	20.14891
2002	21.73699
2003	18.72713
2004	17.28497
2005	19.52394
2006	15.96546
2007	14.89995
2008	14.85605
2009	18.09106
2010	16.71568
2011	16.49986
2012	15.35946
2013	17.23535
2014	17.5585
2015	17.82729
2016	14.21111

Table 9: International Tourism Receipt (% of Total Exports) from 2001 to 2016

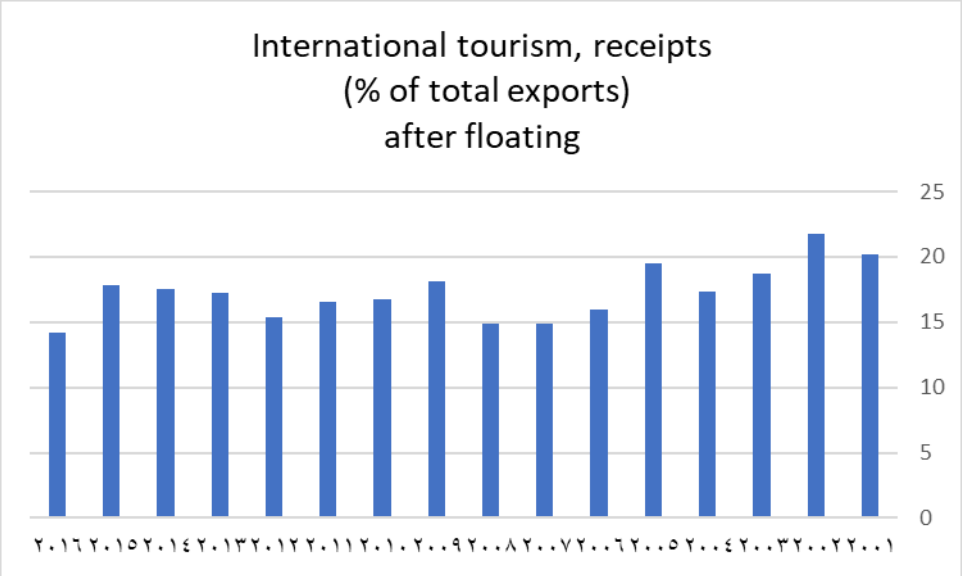

Fig 21: ComparingInternational Tourism Receipt(% of Total Exports) from 2001 to 2016

5. CONCLUSION

In this paper, we compared the situation before and after currency float in both Turkey and Egypt. We have noticed that exports were considered the most important independent factor and that it has the biggest positive impact on the size of foreign reserves in Turkey. This means that exports should be relied upon as a major source of foreign reserves rather than remittances or foreign direct investment.

In addition, the annual growth rate of the Turkish exports after the devaluation of the currency increased and then gradually decreased. This decline was the prelude to the global economic crisis of 2009.However; Turkey had quickly recovered in 2011 to become the second largest country in the world in terms of economic growth after China. Furthermore, we have concluded thatit is not necessary to rely on the export of products in their primary form because their export after manufacturing increases the added value thus leading to increased profits. As a recommendation, we proposed that Egypt should pay particular attention to exporting agricultural products, an area where Egypt has a high competitive advantage. Also, the focus on planting the strategic product that was consumed in large quantities rather than importing itas well asceasing the planting of products which are cheaper when imported to the country. In this paper, we also focused on the importance of tourism and its effects on the country since it is considered part of exports.

Finally, the focus on the quality is crucial and having high technologyin the country's systems would add to the quality and generate more profit. The technology must be kept up to date not only as a consumer but as a producer

country as well and this would lead Egypt to take its place among worldwide countries in terms of advancements and innovation. In this way, we can promote new concepts of innovation and various improvements within the current systems as well as developing new mindsetsto work for a better future.

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