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Twin Deficit and Macroeconomic Indicators in Emerging Economies: A Comparative Study of Iran and Turkey

Munir A. ABBASI[1], Azlan AMRAN[2], Nazia Abdul REHMAN[3], Noor us SAHAR[4], Arif ALI[5]

Abstract

The study examines the existence of twin deficit in two emerging economies (Turkey and Iran) and also investigates the relation of twin deficit with specific macroeconomic indicators such as the GDP, money supply, foreign direct investment, and the interest rate both in short and long-run periods. The twin-deficit concept refers to a situation where the current account deficit and budget deficits exist in the same corresponding period of an economy. This study employs the Bound Test Autoregressive lag distributed (ARDL) model on time-series quarterly secondary data of Turkey and Iran from 1992 to 2019. The stationarity of variables has been ensured through the Augmented Dickey-Fuller (ADF) test at the level and the first difference. The results reveal the existence of a twin deficit in both the short and long-run periods only in Iran. Its existence could not be observed in the Turkish economy. The findings suggest a positive relationship between twin deficit and GDP, and a negative relationship between twin deficit and FDI and M2. At the same time, the relationship of the twin deficit with interest rate could not be found in the Iranian economy. The findings may be helpful for economic managers of both countries in executing their economic policies.

Keywords: Twin Deficit, Macroeconomic Indicators, Emerging Economies, Bound Test, ARDL Model

JEL Classification Code: E52, E62, F32, F62, H62

1. Introduction

In emerging economies, the budget deficit (BD) and the current account deficit (CAD) are unresolved problems (Purwono, Mucha, & Mubin, 2018). Generally, these economies faced both problems simultaneously, which caused the country's twin deficit (TD) situation (Rosenzweig & Tallman, 1993).

Mundell-Fleming (Fleming, 1962; Mundell, 1963) supported the theoretical clarification of TD. They explained that raising the BD leads to an upward burden on the interest rate, which leads to capital inflows and raises the exchange rate. Specifically, an expansive debt-financed fiscal policy raises the rate of interest. Since most economies have a policy of free movement of capital, the increase in interest rate makes it more attractive for stockholders to invest in this country's financial market. It increases the currency demand, which makes the low-price of imports and exports costlier than the external goods' prices. Therefore, devaluation of the national currency will cause a rise in imports and, eventually, to CAD (Salvatore, 2006).

Consequently, a raise the BD increases production, and then a high import level leads to an imbalance in CAD with an increase in the exchange rate (Blanchard & Giavazzi, 2002; Hsing, 2017). The exchange rate is mainly calculated by the current account balance or trade balance of a nation in the floating exchange rate system. Consequently, changes in exchange rates influence the trade balance to some extent (Lee & Zhao, 2014; Lee & Brahmasrene, 2018). When BD and CAD are significant, however, the possibility of the relation between them is substantially growing.

Furthermore, during the situation of TD in the economy, other macroeconomic variables may also be affected since

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[1]First Author and Corresponding Author. Graduate School of Business, Universiti Sains Malaysia (USM), Malaysia [Postal Address: 11800, Penang, Malaysia] Email: munyeer@yahoo.com
[2]Dean, Graduate School of Business, Uinversiti Sains Malaysia (USM), Penang, Malaysia.
[3]Benazir School of Business, Benazir Bhutto Shaheed University, Karachi, Pakistan.
[4]Benazir School of Business, Benazir Bhutto Shaheed University, Karachi, Pakistan.
[5]Muhammad Ali Jinnah University, Karachi, Pakistan.

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increases in BD and CAD may be influenced by the demand and supply sides of production, growth rate, imbalance of current balance, rate of interest, and exchange rate (Hakro, 2009; Rehman, Shamshir, & Shakir, 2020). The changes in exchange rate also have a negative impact on FDI flows over the long term (Lee, 2015), while FDI forms part of the growth of every economy (Lee, Baimukhamedova, & Akhmetova, 2010).

Based on these thoughts, this study examines the economic situation of two emerging economies – Turkey and Iran – during the twin deficit (TD). The reason behind the selection of these two emerging economies is the heterogeneity of the economies. The Turkish economy generally consists of agricultural products, textiles, construction materials, electronic and home appliances production (Daragahi, 2018), while Iran's economic growth depends on natural resources (oil). However, according to Kia (2008), regardless of this steady growth factor, the Iranian economy faced BD from 1970 toward 2003. Meanwhile, from 1970 to 2003, both economies, Turkey and Iran, have imbalanced fiscal policies and faced the BD. Other than the study of Akbostanci and Tunc (2001), Acaravci and Ozturk (2008) also investigated the relationship between BD and CAD. At the same time, they found TD situation in Turkey conformed to past studies' outcomes (Bagheri & Hazrati, 2012; Farzinvash & Farahbakhsh, 2011). Furthermore, Kohansal and Alizadeh (2015) also recognized the occurrence of TD in Iran.

The primary purpose of this study is to analyze the relationship between BD and CAD that forms TD in economies of Turkey and Iran and to examine the influence of the TD on the few major macroeconomic indicators such as Gross Domestic Product (GDP), Money Supply (M2), Rate of Interest (IR), and Foreign Direct Investment (FDI).

2. Literature Review

2.1. Evidence of TD

The first part of the literature explains through theoretical literature the relationship between BD and CAD that formed TD in economies, and the second part gathered evidence, which supports the existence of TD situation in Turkey and Iran, and through some studies, how the presence of TD, significant affect macroeconomic variables.

2.2. TD and Economic Theories

The traditional theory of Keynes explained that in the economy, BD caused the CAD because high BD of the economy affects the country's national absorption through raising the consumer's disposable income. This situation is favorable for increasing the country's import that supports the high CAD in the economy (Zengin, 2000). This thought

is cleared that when an economy had high BD, their expenses are more than revenues and affected national absorption, therefore this situation prompt an increase in their imports, resulting in CAD (Corsetti & Muller, 2006; Saleh, Nair, & Agalewatte, 2005; Sujianto, Pantas, Mashudi, Pambudi, & Narmaditya, 2020).

This theory supports the causality of TD found through the BD to CAD (Iram, Shadid, Mahara, & Fazli, 2011; Lau & Baharumshah, 2006; Osoro, Gor, & Mbithi, 2014).

Mundell-Fleming (Fleming, 1962; Mundell, 1963) claimed that an increase in BD encourages a high-interest rate that causes the high capital inflows and raises the national currency rate. That situation results in CAD in the country. This argument favors the TD situation, which is caused by the positive relationship between BD and CAD. According to Mohanty (2018), this theory produces strong evidence of the presence of TD through the relation of BD and CAD because an increase in BD affected national capital flow, rate of interest, exchange rate, and exports of the country that caused CAD in the economy; and the economy faced TD.

Although Summers (1988) countered the Keynesian theory and Mundell Fleming's approach, CAD is the cause of BD, yet he supported the TD approach. According to him, in those economies in which imports are the primary source of production, high imports may cause CAD. In this situation, the country's production level may be affected, leading to BD; thus, TD will be a definite outcome in the concerned economy. Several researchers such as Kearney and Monadjemi (1990), Khalid and Guan (1999), Fountas and Tsoukis (2004), Kim and Kim (2006), Ganchev, Stavrova, and Tsenkov (2012), Lau, Mansor, and Puah (2010), Xie and Chen (2014), and Nguyen, Hoang, and Nguyen (2020) tested this theory in diverse countries and proved that a higher level of import caused CAD in these economies. That situation moved to the low production level resulting in BD, which provided TD situation in these economies.

Another theory that explained the savings and investment relationship favors the TD approach. Feldstein and Horioka (1980) demonstrated that the significant investment and savings relationship initiated the BD and CAD at a similar period in the economy, which indicated that TD exists in the country. Several researchers tested this theory and confirmed the TD condition through the significant correlation of savings and investment that formed BD and CAD at a similar period in various economies (Altıntaş & Taban, 2011; Bagnai, 2006; Chen & Shen, 2015; Coakley, Kulasi, & Smith, 1996; Fidrmuc, 2003; Lau et al., 2010; Roubini, 1988).

Barro (1989) refuted these views through the Ricardian equivalence theory. He stated that increased BD due to higher government expenditure must be compensated with the overall worth of revenues by the overall current worth of expense. Consequently, today's tax rate would be corresponding with raising the upcoming tax rate, leaving

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the rate of interest and private assets unaffected. This theory suggests that the low rate of government savings is encountered through equivalent rises in personal savings rates. Therefore, CAD does not affect government expenses and leaves the budget unaffected. Thus, this theory supported the independent association of BD and CAD, which claimed the absence of TD in the economy (Bolat, Emirmahmutoglu, & Belke, 2014; Halicioglu & Eren, 2017; Sen & Kaya, 2016).

2.3. Evidence of TD in Turkey

There are two opinions about TD in the Turkish economy. Some evidence supports BD and CAD's association that produces TD situation in the Turkish economy. On the other side, few studies opposed the existence of TD.

From 1987 to 2001, Turkey faced the TD situation; Akbostanci and Tunç (2001) concluded that through a Cointegration and ECM technique test. The outcomes of Acaravci and Ozturk's (2008) study also support this result. They used the ARDL model on Turkish economic data during 1987–2005 and confirmed the TD in Turkey.

TD was found in Turkey during 1974–2004 through the bidirectional relationship of BD and CAD. Altintas and Taban (2011) claimed this results from the Toda-Yamamoto test of causality. Similarly, from 1980 to 2009, Azgün (2012) verified the TD situation. The study's outcomes confirmed the correlation between BD and CAD in this period by applying the test of Granger Causality and the VAR model.

Ucal and Bolukbas (2013) conducted a study using quarterly data from 1960–2011. The results pointed out that the correlation between BD and CAD formed the TD situation in Turkey. Similar findings were suggested by Uzumcu and Kanca's (2013) study that examined yearly data from 1980–2015. In addition to that, Oruc (2017) applied the Phillips test – cointegration on the data from the period 1975–2015; and endorsed the existence TD situation in the Turkish economy.

Contrary to such findings, Kuştepeli (2001) did not find the TD in Turkey. He worked on the Turkish economy from 1977 to 1995. The same was endorsed by the study of Uz (2010) on the quarterly data in the period 1987–2008. Similarly, Sahin's (2015) study disproved the relation between BD and CAD. He examined quarterly economic data from 1995–2013 through the VAR approach.

2.4. Evidence of TD in Iran

Iran has faced several problems because of the sanctions. Low production, increase BD, unemployment, and inflation caused a devaluation of the Iranian currency, directly connected with Iran's CAD (Hakimian, 2012). Consequently, many researchers studied Iran's economy during different periods and found the presence of TD.

Bagheri and Hazrati (2012) established the TD situation in the Iranian economy from 1971 to 2007. They claimed BD and CAD's relation that confirmed the TD in Iran using the Granger causality test. While from 1959 to 2007, TD was confirmed by Zamanzadeh and Mehrara's (2011) study. They examined this data through the VECM technique.

Kohansal and Alizadeh (2015) tested the economic data of Iran from 1971–2012. The study results confirmed the association of CAD and BD that caused the TD situation in Iran during this period. They found this outcome by using the Johansen test of cointegration and the VAR technique. Similarly, Saba (2015) examined the Iranian economy's data from 1970 to 2013 through the ARDL model. She found that an increased inflation rate negatively affected the revenue; due to this negative correlation, the economy faced BD that supported CAD in an economy at a similar time.

Additionally, Farzinvash and Farahbakhsh (2011) analyzed the data from 1950 to 1985. The results proved the existence of TD in the Iranian economy, and his study confirmed the correlation between TD, consumption, and GDP. Correspondingly, Ghaderi, J., Samadi, and Ghaderi, S. (2016) examined the Iranian quarterly data from the VAR model from 1990 to 2011. They found the presence of TD in Iran and confirmed the negative relation between GDP and TD.

3. Methodology

3.1. Data and Variables

This study intended to investigate the presence of TD and its influence on Turkey and Iran's emerging economies using quarterly time-series data from 1992 to 2019. The data were collected from IFS Statistical data, World Bank data, Economic and published reports of Turkey and Iran's central banks.

Theories of Twin deficit mentioned that TD's presence depends on the positive relation of BD and CAD; thus, for empirical analysis of the presence of TD, the study used the macroeconomic variables CAD, which is specified as the net export of commodities and services including net factor income. Also, it used BD, which is the difference in revenue and expense of government. Similarly, for analyzing the influence of TD, it used few major macroeconomic indicators, i.e., Gross Domestic Product (GDP), Money Supply (M^2), Rate of Interest (IR), and Foreign Direct Investment (FDI) in the model.

3.2. Model

This study's empirical model uses the National Income function in an open economy to conclude the corresponding BD and CAD that form the TD in an economy. This model can be defined, as.

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$$Y = C + I + G + X - M \qquad (1)$$

Wherever

Y = GDP
C = Government consumption
I = Government investment
G = Government expenses
X = Exports
and M = Import

Then the difference of the import (M) and export (X) is a capital account (CA); thus, equation (1) establishes:

$$CA = Y - (C + I + G) \qquad (2)$$

Here $C + I + G$ represents domestic absorption, while in a closed economy, investment (I) and Saving (S) are equivalent so,

$$Y - C = S \qquad (3)$$

and

$$S = I + CA \qquad (4)$$

The above equation shows the improvement of NI in an open economy through investment.

$$S = S_{pvt} + S_{govt} \qquad (5)$$

In an open economy saving is the sum of private (S_{pvt}) and public saving (S_{govt}). In the economy, S_{pvt} measures through the used income of consumers, expressed by disposable income (Y^d), while S_{govt} is the difference of tax rate (T), expenses of government (G), and government transfer (R_t).

$$S_{pvt} = Y^d - C = (Y - T) - C \qquad (6)$$

$$S_{govt} = T - G - R_t \qquad (7)$$

Equations 5, 6 and 7, concludes that,

$$S = (Y - T - C) + (T - G - R_t) = I + CA \qquad (8)$$

$$S_{pvt} = I + CA - S_{govt} = I + CA - (T - G - T_r) \qquad (9)$$

This relation shows the indicators of the economy, current account, investment, and government saving.

$$CA = S_{pvt} - I + (T - G - T_r) \qquad (10)$$

or

$$CA = S_{pvt} - I + BB \qquad (11)$$

The last expression shows the economy's CAD through the difference in savings and investment and BB's addition. If the difference between investment and savings remains fix, BB's changes affected the economy's CAD. It means this situation caused the TD in the economy. This condition has led to the conclusion that BB's rise leads to a rise in savings because

of the future tax rates estimated to rise. As a result, consumer expenditures and CAD do not increase (Osoro et al., 2014).

The literature of TD regarding Turkey and Iran identified the relationship between BD and CAD in different periods. The basis of the literature developed a model to achieve the purpose of the study.

$$CAD = f(BD, GDP, FDI, M^2, IR) \qquad (12)$$

Expanded multivariable model is,

$$CAD = \beta_0 + \beta_1 BD + \beta_2 GDP + \beta_3 FDI + \beta_4 M^2 + \beta_5 IR + u_t \qquad (13)$$

The wherever intercepted term is β_0, and regression constants are $\beta_1, \beta_2, \beta_3, \beta_4,$ and β_5.

Similarly, the stochastic disorder term represents U_t, and tth time represents by t (Gujarati, 2003).

And all variables of the model are in quarterly % and define as,

CAD = Current Account Deficit of Economy
BD = Budget Deficit of Economy
GDP = Nominal Gross Domestic Product
FDI = Foreign Direct Investment
M^2 = Money Supply
IR = Real Interest Rate

Equation (13) applies to quarterly economic data of both emerging countries, Turkey and Iran, to check the association of BD & CAD that confirm the existence of TD in these economies.

4. Empirical Results

4.1. Unit Root Test

In the time-series data, before finding the relationship between the variables, it is necessary to check the variables' stability during the observed period because outcomes on regression may be inaccurate due to non-stationary variables (Granger & Newbold, 1974). Therefore, the study applied the Augmented Dickey-Fuller or ADF (1979) test to check the data's stationery before analyzing the study's model. This test expressed as,

$$\Delta Y_t = \alpha + \beta_t + \gamma Y_{t-1} + \delta_1 \Delta Y_{t-1} + \cdots + \delta_{p-1} \Delta Y_{t-p+1} + \varepsilon_t$$

4.1.1. Unit Root Test Results of Turkey

ADF test results for Turkey are shown in Table 1, which indicates that only the variable GDP is stationary at the level of 5% in Turkey. In contrast, during the period 1992–2019, the variables BD, CAD, M^2, FDI, and IR are stationary at first difference.

Table 1: Unit Root Test of Turkey and Iran

Country	Variables	Augmented Dickey-Fuller Test Statistic (At Level)		Augmented Dickey-Fuller Test Statistic (At First Difference)		Integration
		T-Values	Probability	*T*-Values	Probability	
Turkey	CAD	−1.4638	0.5479	−5.3984	0.0000	*I*(1)
	BD	−1.8849	0.3382	−4.1863	0.0011	*I*(1)
	GDP	−3.4863	0.0103	–	–	*I*(0)
	FDI	−2.5547	0.1059	−3.5618	0.0082	*I*(1)
	M_2	−1.5691	0.4946	−4.5920	0.0003	*I*(1)
	IR	−1.6663	0.4452	−4.6134	0.0002	*I*(1)
Iran	CAD	−3.9108	0.0028	–	–	*I*(0)
	BD	−2.5510	0.1067	−7.3093	0.0000	*I*(1)
	GDP	−1.4227	0.8486	−3.6392	0.0314	*I*(1)
	FDI	−2.3262	0.1658	−3.9143	0.0028	*I*(1)
	M_2	0.5539	0.9878	−3.8195	0.0037	*I*(1)
	IR	−2.4229	0.1380	−3.5684	0.0081	*I*(1)

Table 2: Bound Test Results of Turkey and Iran

Equation	Country	*F*-Statistic Calculated	Upper Bound	Critical Value	Conclusion
CAD, BD, GDP, FDI, M_2, IR	Turkey	6.540508	4.68	1%	Co-Integration exists
CAD, BD, GDP, FDI, M_2, IR	Iran	7.11107	4.68	1%	Co-Integration exists

Table 1 shows the outcomes of the ADF technique, which is used to test the integration of variables. The ADF test results show that in Iran, only the variable CAD is stationary at a level from 1992 to 2019 while variables BD, GDP, M_2, FDI, and IR are stationary at the first difference of 5%.

4.2. Bound Test of Cointegration

Bound test of cointegration is applied to check the existence of long-run relations between n series integrated of several orders, i.e., *I*(0) and *I*(1). This test restates the hypothesis of long-run constant equilibrium cointegration between variables (Omoniyi & Olawale, 2015). Through this test, cointegration does exist when the value of *F*-statistics goes above the upper bound, while if value below the lower bound, then cointegration does not find. Similarly, cointegration is indeterminate when the value of *F*-statistics lies between the upper and lower bounds.

Table 2 shows the bound test outcomes, which show the cointegration among the series of both Turkey and Iran. The results show that cointegration exists in both countries since *F*-statistic values are higher than those of Turkey and Iran's upper bounds. Because a cointegration among the time series was detected, an ARDL approach can identify short and long-term associations of variables.

4.3. Autoregressive Distributed-Lagged Model (ARDL)

Pesaran and Shin (1999) and Pesaran, Shin, and Smith (2001) introduced the ARDL model to analyze the short- and long-run association of variables. This model is used in this condition when variables are stationary at the mix level, i.e., at the level and first difference. For the study, the null hypothesis of the ARDL test is:

$$\textbf{\textit{H0:}}\ \varphi_1 = \varphi_2 = \varphi_3 = \varphi_4 = \varphi_5 = 0$$

$$\textbf{\textit{H1:}}\ \varphi_1 \neq \varphi_2 \neq \varphi_3 \neq \varphi_4 \neq \varphi_5 \neq 0$$

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Table 3: Long Run ARDL Model Result for Turkey

Selected Model: ARDL (3, 0, 2, 2, 4, 1); Dependent Variable: CAD; Included Observations: 104			
Regressor	**Coefficient**	**Standard Error**	**Probability**
BD	0.011081	0.095199	0.9076
GDP	−0.216841	0.090320	0.0185
FDI	−0.036565	0.038733	0.0030
M_2	−0.114642	0.036886	0.0026
IR	0.021071	0.010541	0.0488
C	2.657131	2.017476	0.1913

Moreover, The ARDL equation of the study is:

$$\Delta CAD = C + \sum_{i=1}^{n} \gamma_1 \Delta CAD_{t-i} + \sum_{i=0}^{n} \gamma_2 \Delta BD_{t-1}$$
$$+ \sum_{i=0}^{n} \gamma_3 \Delta GDP_{t-1} + \sum_{i=0}^{n} \gamma_4 \Delta FDI_{t-1}$$
$$+ \sum_{i=0}^{n} \gamma_5 \Delta M_{t-1}^2 + \sum_{i=0}^{n} \gamma_6 \Delta IR_{t-1} + \varphi_1 BD_{t-1}$$
$$+ \varphi_2 GDP_{t-1} + \varphi_3 FDI_{t-1} + \varphi_4 M_{t-1}^2 + \varphi_5 IR_{t-1} + \varepsilon_t$$

Where,

$\gamma_1, \gamma_2, \gamma_3, \gamma_4, \gamma_5$ and γ_6 are the short run and $\varphi_1, \varphi_2, \varphi_3, \varphi_4,$ and $\varphi_5,$ are the long-run dynamic estimates of the ARDL model.

4.3.1. Long-Run ARDL Model Results for Turkey

The long-term results of the ARDL model for Turkey indicate the insignificant association of CAD and BD, which rejects the presence of TD in Turkey from 1992 to 2019. This result supports the Ricardian equivalence theory and confirms that TD was not found in Turkey during this period. Similar outcomes were found in the studies by Kustepeli (2001), Uz (2010), and Sahin (2015).

Other results of this test explore that during the absence of TD, IR and CAD have found significant positive associations. In contrast, FDI, GDP, and M^2 have found a significant negative relation at a 5% level with CAD from 1992 to 2019.

Similarly, results also show the relationship between CAD and other macroeconomic variables. It indicates that a one percent increase in GDP, FDI, and M^2 of Turkey led to a 21.68, 3.65, and 11.46 percent, respectively, decrease in CAD, while a 1% increase in IR causes a 2.10% increase of CAD of Turkey.

4.3.2. Short-Run ARDL Model Results for Turkey

In the results of the short-run ARDL, the Error correction model ECM value is most significant, and this value

Table 4: Short Run ARDL Model Result for Turkey

Selected Model: ARDL (3, 0, 2, 2, 4, 1); Dependent Variable: CAD; Included Observations: 104			
Regressor	**Coefficient**	**Standard Error**	**Probability**
D(CAD(−1))	0.454590	0.085537	0.0000
D(CAD(−2))	0.077426	0.051424	0.1358
D(BD)	0.001665	0.014107	0.9063
D(GDP)	−0.309005	0.021588	0.0000
D(GDP(−1))	0.157324	0.035159	0.0000
D(FDI)	−1.149515	0.207995	0.0000
D(FDI(−1))	0.516503	0.218473	0.0203
D(M^2)	−0.139043	0.031881	0.0000
D(M^2(−1))	0.040761	0.042902	0.3447
D(M^2(−2))	−0.030464	0.037714	0.4215
D(M^2(−3))	0.045735	0.023390	0.0538
D(IR)	−0.016878	0.003839	0.0000
ECM(−1)	−0.150223	0.033326	0.0000

determines the speed of change to evaluate the variables in the future period. Ideal ECM value must be significant and negative as well. This value lies among 0 to −1 (Samargandi, Fidrmuc, & Ghosh, 2013).

In Table 4, the ECM value for Turkey is (−0.1502), close to −1, and significant. This value suggests that in Turkey, the speed of adjustment changes is taking very rapidly; this deviation from the long run is adjusted by 0.1502%.

In Turkey, the ARDL results denied the relationship between BD and CAD and found that this association did not cause TD situation during this period 1992 to 2019. It means that in Turkey, TD does not exist from 1992 to 2015. The results of Sahin's (2015) study also supported the absence of TD in Turkey from 1993 to 2015. During this period, the feasible budget and trade policy did not cause the TD in Turkey's agricultural economy.

4.3.3. Long-Run ARDL Model Results for Iran

Table 5 presents the long-term ARDL results for the economic data of Iran. The significant positive relationship between BD and CAD confirms the TD situation in Iran from 1992 to 2019. This result supports the Keynesian and Mundell-Fleming approaches, which stated that the BD caused CAD in the economy. Studies of Zamanzadeh and Mehrara (2011) and Farzinvash and Farahbakhsh (2011) also confirm the result.

The long-run ARDL test results also indicated the significant relation of CAD, M^2, GDP, and FDI, while IR has an insignificant

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Table 5: Long Run ARDL Model Result for Iran

Selected Model: ARDL (3, 0, 2, 2, 4, 1); Dependent Variable: CAD; Included Observations: 104			
Regressor	**Coefficient**	**Standard Error**	**Probability**
BD	0.462226	0.154997	0.0037
GDP	0.089361	0.036834	0.0173
FDI	−0.595591	0.061470	0.0056
M^2	−0.213384	0.072807	0.0043
IR	−0.098793	0.202428	0.6267
C	13.785817	2.332941	0.0000

Table 6: Short Run ARDL Model Result for Iran

Selected Model: ARDL (3, 0, 2, 2, 4, 1); Dependent Variable: CAD; Included Observations: 104			
Regressor	**Coefficient**	**Standard Error**	**Probability**
D(CAD(−1))	0.459827	0.082068	0.0000
D(CAD(−2))	0.144654	0.069485	0.0403
D(CAD(−3))	0.107670	0.069428	0.1245
D(BD)	0.767509	0.088854	0.0000
D(BD(−1))	−0.383128	0.113573	0.0011
D(GDP)	0.526095	0.099542	0.0000
D(GDP(−1))	−0.286383	0.111711	0.0121
D(FDI)	0.340115	0.442787	0.4445
D(M^2)	−0.052811	0.018804	0.0061
D(IR)	−0.363573	0.151916	0.0188
ECM(−1)	−0.247491	0.039098	0.0000

relation with CAD. The result confirmed that during the TD situation in Iran from 1992 to 2019, the macroeconomic variables GDP, FDI, and M² were affected. As a result, GDP has a positive association with TD, which is also confirmed from Furceri and Zdzienicka's (2018) study. Similarly, the negative relationship between FDI and M_2 is confirmed by Saba's (2015) study. Outcomes of the ARDL test show that a 1% increase in Iran's GDP causes an 8.94% increase in TD while a 1% increase in FDI and M² led to 59.56% and 21.34%, respectively, decrease in TD of Iran from 1992 to 2019.

4.3.4. Short-Run ARDL Model Results for Iran

ECM's value through Iran's data is negative and significant, suggesting that during TD from 1992 to 2019,

deviation from the long run is adjusted by 0.2475%. It is clear from the short-run results in Iran speed of change of adjustment is taking very rapidly.

The ARDL results for Iran confirmed the relationship between BD and CAD from the TD situation in Iran from 1992 to 2019. Although Iran is an oil-producing country, their economy used an unsustainable budget policy; furthermore, government revenue and expenditure are not related to each other, which caused BD in the economy (Kia, 2008). BD led to CAD, which created the TD situation.

5. Conclusion

This study's focus is not only to detect the presence of TD, but also to examine the influence of this deficit in Turkey and Iran's two emerging economies. The previous studies by Lau and Baharumshah (2006), Iram et al. (2011), Osoro et al. (2014), and Mohanty (2018) favored the economic theories of Keynesian and Mundell Fleming, who supported the existence of TD in the economy. Consequently, from outcomes through this comparative study, ARDL test results found the existence of TD situation in Iran, whereas, in the case of Turkey, the relationship of TD with BD and CAD was not found from 1992 to 2019. Kustepeli (2001), Uz (2010), and Sahin (2015) opposed the existence of TD in the economic data of Turkey. While in Iran, studies by Bagheri and Hazrati (2012), Saba (2015), and Ghaderi et al. (2016) confirmed the TD. The presence of TD in Iran affirms the Keynesian and Mundell-Fleming theories that support the presence of TD is because of BD that caused CAD in the economy.

Furthermore, the studies by Salvatore (2006), Blanchard and Giavazzi (2002), Hakro (2009), and Rehman et al. (2020) discussed and proved that during TD, other macroeconomic variables were affected. Therefore, the study results confirmed that during TD in Iran from 1992 to 2019, GDP has a positive association, while a negative relationship between FDI and M2 is confirmed with TD. However, despite the absence of TD in Turkey, macroeconomic variables FDI, GDP, and M2 have found negative associations, while GDP has a positive relation with CAD.

In conclusion, it is interesting to compare the results of these two economies. Despite being an oil-producing country and contingent comprehensively on energy revenue, Iran has faced the TD situation unexpectedly. In contrast, despite agricultural nation-wide growth, Turkey's budgetary policy remains strong (Kia, 2008). Since joining the Customs Union in December 1995, Turkey's trade has expanded considerably (Becker, Baki, & Lee, 2016); thus, Turkey has not faced TD from 1992 to 2019.

From the outcomes of the study, it is cleared that the main reason for TD is the existence of BD and CAD at a similar period in a country, so for the solution of TD, it suggests

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established robust and integrated monetary and fiscal policies in the country. Further, structural tax rate systems, controlled trade policies, and money supply introduce new strategies for investors to support the economy's budget and trade balance.

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