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Stability Analysis of the Money Demand Function

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Abstract: This study aims to analyze the interactions among real money balances, income, and interest rates in Jordan, with the goal of estimating Jordan's money demand function and demonstrating its stability. Using quarterly data from 2008 to 2020, the research employs unit root and cointegration tests to determine stationarity and identify lasting connections among the variables. The coefficients are estimated using the dynamic least squares (DOLS) method. The findings indicate that a 1% rise in interest rates leads to a 0.4% drop in money demand, reflecting an interest rate elasticity of -0.40 for money demand. Additionally, the income elasticity of money demand is estimated at 2.65, meaning a 1% increase in real income, as measured by real GDP, results in a 2.65% increase in money demand. These results align with theoretical expectations. Moreover, the research demonstrates that Jordan's demand for money has remained steady, as both narrow and broad money demand functions have shown consistency over the past decade, despite structural reforms and financial liberalization in the Jordanian economy. This consistency implies that persistent changes occur over time under a stable set of monetary policy tools that affect the demand for money, especially real cash holdings. In summary, the study highlights the enduring relationship among real money holdings, income, and interest rates in Jordan's money demand equation, offering valuable insights for policymakers to develop effective monetary strategies and maintain economic stability within the nation.

Keywords: demand for money, income, rate of interest, stability, Dynamic Ordinary Least

1 Introduction

Researchers and policymakers have closely examined the factors influencing money demand. Understanding the need for money is essential for creating tactics that promote economic stability and growth. Understanding the impact of income, interest rates, and other variables on money demand is crucial for developing effective monetary policies that can lower inflation, stabilize the economy, and promote economic growth. Furthermore, investors could use their understanding of money demand to anticipate interest rate fluctuations and adjust their investment portfolios accordingly. However, for the monetary authority to implement effective monetary policy and accurately predict how monetary policy will impact the economy, a stable money demand function is essential [1].

Before the late 1980s, when monetary targeting was regarded as a workable strategy to attain price stability, the stability of the money demand function was well acknowledged in economic research. But the assumption that the money demand function is stable was proven to be incorrect when monetary targeting was introduced in a few wealthy nations. The banking industry's technical innovations, especially those related to e-payments, after the 1980s, together with a number of financial liberalization policies and regulatory adjustments all contributed to this realization. In the United States and the United Kingdom, for example, the formerly robust and stable link between the policy goal variable and the targeted monetary aggregate was negatively impacted by these revolutionary shifts in the financial markets. As a result, the money demand was viewed as "unstable" [2].

Many economic factors such as income, savings, inflation, financial innovations, and interest rates influence the demand for money. Two additional factors that affected money demand were the GDP and interest rate. The desire to save money is likely to increase in

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correlation with rising income. The balance between holding cash for quick access and earning interest on other currencies is a key factor in people's motivation for acquiring money [3].

After the Jordanian economy underwent financial liberalization and deregulation in the 1990s, the significant transformations in both the economy and politics could greatly impact the demand for money and its stability. We ask the following question to investigate the money demand dynamics: "Have monetary liberalization efforts resulted in the stability of money demand in Jordan?"

This research seeks to demonstrate the stability of Jordan's money demand function. In order to accomplish this, quarterly data from Jordan spanning from 2008 to 2020 will be utilized to calculate the money demand function through a dynamic ordinary least squares (DOLS) approach.

Hence, the primary focus of this paper is to evaluate whether the financial liberalization that started in the 1990s has jeopardized the stability of money demand in Jordan.

The research is organized as follows: sections two and three give a short description of the conceptual framework of the demand for money various identifications and an overview of the published works on relevant academic works. While, the definition of data and the estimation method is discussed in section 4, whereas an experimental assessment of demand for money and money demands' stability specification is provided in section 5. In the end, a brief summary and conclusion is addressed in section 6.

2 Literature Review

Lucas [4] conducted an analysis to test the stability of the money demand function (M1) in the United States, building upon Meltzer's [5] assessment that established an equilibrium relationship between interest rates, real money balances, and GDP as a measure of transactions. The data used in the study spanned until 1985. Lucas came to the conclusion that there is a consistent correlation between these factors, with income elasticity having a major influence. Similarly, Hoffman and Rasche [6] provided evidence supporting the stable equilibrium of the demand function for real balances (M1) in the U.S. economy after World War II.

Nevertheless, the long-term empirical correlations that connect monetary aggregates to changes in prices and interest rates began to deteriorate in the 1980s and have not improved since, claim Lucas and Nicolini [7]. They attribute this apparent instability in the demand for money to regulatory changes in the banking sector in the early 1980s, where different currencies and types of deposits were treated as distinct means of payment. They also found that the latest monetary aggregate performed well over the period from 1915 to 2012. Comparably, Telles and Zhou [8] put out another method of measuring money that took into consideration modifications to survey methodologies and changes to banking industry laws. They proved that the long-term link between economic activity, real money, and the alternative opportunity cost was preserved when the monetary scale was changed starting in 1980.

In the past few decades, emerging nations have experienced significant changes in their macroeconomic environment. Over the last few decades, the sub-Saharan African region has experienced a range of economic progress. The money demand model's parameters and function may change due to these modifications. However, there have been few empirical studies of this nature in East Africa. The pooled ordinary least squares estimator found that smartphones, ATMs, and economic development increase money demand, while interest rates decrease it. To boost the need for money in East African economies, it has been emphasized that policymakers and monetary authorities have a crucial role in overseeing the utilization of ATMs, mobile money, income, and interest rates [3].

Durmaz and Jie's [9] analysis of the connection between real income, inflation rate, and money demand in Mexico suggests that the most crucial relationship is between the exchange rate and money demand. They analyze whether the exchange rate will have the same impact on the short- and long-term demand for money using Mexico's quarterly data from 2000 to 2022. The results show that both real income and inflation rate have a positive impact on money demand over time, in line with expectations. Because of insufficient study data or a limited time frame, the present research did not identify any asymmetric effect of the exchange rate.

Many studies have been carried out to analyze the money demand in Jordan, offering real-world proof on the issue. Zu'bi and Al Sawaie [10] analyzed the Jordanian economy's long-term money demand by examining the connection between narrow and broad money supply, income, interest rate, inflation, and exchange rate from 1971 to 2000. The OLS test results showed a correlation between money supply and income over the long term, as well as the anticipated negative relationships between interest rate and exchange rate. The findings also showed that an increase in real income boosts the demand for money, whereas a rise in interest rates decreases it.

Zyoud and Al Sawaie [11] utilized co-integration tests and vector error-correction models to analyze the drivers of money demand in Jordan, looking at narrow and broad definitions to identify a suitable target for monetary policy. They analyzed data every three months from 1992 to 2005. It was discovered that both M1 and M2 had connections to income and interest rates. In the short term, the relationship between interest rates on deposits and the money demand function varied. The research found that there are long-term connections in the money demand functions for narrow and broad concepts, and a variable relationship between the exchange rate and demand for money in the short term. Nevertheless, in

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neither situation was the interest rate found to be adaptable in the short term. Furthermore, a study conducted by Shawaqfeh [12] utilized quarterly data spanning from 1993 to 2008 to analyze the real money demand using dynamic ordinary least squares (DOLS) and error correction model (ECM) methods. The results confirmed previous findings, indicating a sustained connection between actual money demand and the variables that explain it as predicted by economic theory.

Furthermore, Saed and Shawaqfeh [13] examined the sustainability of the real money demand function by analyzing quarterly data from 1995 to 2016 in Jordan. They utilized a model called auto-regressive distributed lag co-integration to investigate the potential long-term connection between money demand and factors such as the real interest rate, real GDP, financial development, and the State of Palestine Index (SPI). The results showed a sustained connection between actual money supply (M1, M2) and their characteristics. The research emphasized M1 as an appropriate measure for money demand, emphasizing financial innovation's role in explaining it and its significance in shaping monetary policy. The central bank's capacity to efficiently utilize M1 in shaping and executing monetary policy was underscored as well.

Meltzer [5] divided the desire for money into three categories. In the first version, the following equation connects the ratio of monetary balances to nominal income (m) to nominal interest rates (i):

$$m = \alpha i^{\beta} \tag{1}$$

At which the constant term $\alpha > 0$ as well as $\alpha < 0$ assess the demand for money's interest rate elasticity. However, the other form is the adaptation of Cagan [14] which links m to the level i by:

$$m = Ae^{\mu i} \tag{2}$$

The logarithmic format of the demand for money, referred to as the mentioned format, determines the semi-elasticity of the constant term and the interest rate's impact on the demand for money. It consists of two forms, (1) and (2), assuming equal income elasticity of one. The third form establishes a link between the logarithm of real money balances ($\ln(M/P)$), the logarithm of real GDP ($\ln(Y/P)$), and the logarithm of the nominal interest rate ($\ln(i)$).

$$\ln(M/P) = b_1 + b_2 \ln(Y/P) + b_3 \ln i \tag{3}$$

Equation (3) is called the elasticity of demand for money because it reduces the preposition of income elasticity. From a theoretical aspect, positive prediction is for the demand for money's income elasticity, while negative prediction is for the interest rate elasticity.

3 Data and Methodology

The study's data comprised 50 quarterly observations in Jordan spanning from 2008 to 2020. The research was concentrated on two money-related factors, specifically M1 and M2. Quarterly real GDP, interest rate data, and price index data (with a base year of 2016 set at 100) were used to calculate actual income. These variables were utilized to calibrate the M1 and M2 series by considering fluctuations in the inflation rate, ultimately acquiring genuine money reserves. Afterward, real interest rates were computed by applying Fisher's formula. The necessary data was obtained from the Central Bank of Jordan's (CBJ) statistical database.

The Dynamic Ordinary Least Squares (DOLS) methodology was used to estimate the coefficients in this study, and it is considered a strong method for estimating dynamic regressions in co-integration. Stock and Watson [15] emphasized the appropriateness of utilizing dynamic regression estimations to capture the co-integration relationship. In this study, the DOLS approach is used as a single equation method to tackle endogeneity in regression by including current, past, and future variable changes with leads and lags in the equation. This method enables a more precise calculation of the coefficients and guarantees that the internal regression dynamics are appropriately considered.

$$Y_t = \beta_0 + \beta \chi_t + \sum_{j=-n}^{n} d_j \Delta \chi_{t-j} + u_t \tag{4}$$

Whereas:

Y_t: The variable that is reliant χ_t: The matrix of explanatory variables n: The duration of time that comes before and after

Equation (4) will be used to assess the dynamic regression equation (5) according to the overall explanation given. The precise format of the dynamic regression equation is outlined below.

$$\ln\left(\frac{M}{P}\right) = b_1 + \beta_2 \ln(Y_r)_{t-j} + \beta_3 \ln(i) + \sum_{j=-n}^{n} h_j \Delta \ln(t)_{t-j} + \sum_{j=-n}^{n} k_j \Delta \ln(i)_{t-j} + u_3 t \tag{5}$$

Johansen [16] co-integration methodology will be used to test the co-integration relationship of the variables in Equation (5). Based on the maximum-likelihood estimation technique, where (m : lags) can stand for Vector Auto-regression (VAR), as follows:

$$\Delta Z_t = \nu + \Pi Z_{t-1} + \sum_{i=1}^{m-1} \Gamma_j \Delta Z_{t-i} + \varepsilon_t \tag{6}$$

The kickoff in the Johansen method is to determine every variable of the degree of integration and to perform

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the Augmented Dickey-Fuller [17] test for every series to specify their degree of integration. To check whether the variable has a unit root or not, Dickey and Fuller [17] improved a course of action according to the following form:

$$\Delta y_t = \Phi + \Psi y_{t-1} + \omega t + \sum_{i=1}^{n} \gamma_j \Delta y_{t-j} + \rho_t \qquad (7)$$

This study utilizes the augmented Dickey-Fuller (ADF) test, with t representing the time trend and n representing the amount of lagged variables in the model. In order to determine the presence of a unit root or the stationarity of the process, the ADF test involves conducting a hypothesis test after estimating the regression (Equation (7)) for each series. To explore the potential impacts of structural failures on the series, alongside the ADF test, the unit root test is conducted following the approach recommended by Zivot and Andrews [18].

The Zivot and Andrews test aims at identifying just one structural break internally, pinpointing the exact time period for examination. The Zivot and Andrews test stands out from other tests due to its internal identification, instead of relying on externally specified break points. Evaluating stability in the money demand function involves conducting a CUSUMSQ test. If the CUSUMSQ statistic surpasses the critical threshold at a 5% significance level, the null hypothesis stating a constant demand equation throughout the research period is denied.

4 Empirical Results

When analyzing time series data, it is common practice to investigate the statistical properties of variables by utilizing the Augmented Dickey-Fuller (ADF) unit root test. The ADF test helps us determine if a variable has a unit root or is stationary. The ADF test's null hypothesis posits a unit root, while the alternative hypothesis indicates stationarity of the variable. The outcomes of the ADF unit root test play a vital role in defining the characteristics of the variable.

Table 1 presents the summary statistics and correlation matrix for the variables included in this analysis. The distribution of all series appears to be normal, except for the real interest rate variable, which deviates from normality. The correlation matrix provides valuable insights as it indicates a significant positive relationship between the demand for money and income. However, it is important to note that correlation analysis alone is insufficient to establish causal relationships. Further econometric analysis is necessary to either support or refute the claims made in this study.

Table 2 shows the results of the unit root test ADF, and the optimum lag period was determined employing the Akaike Information Criterion (AIC) [19], and in compliance with the results of the unit root test ADF, each and every variable in the equation is integrated in the first order I(1).

Table 1: Summary statistics

	LNGDPR	LNM1	LNM2	LNR
Mean	8.798804	4.520087	5.701457	2.053383
Median	8.806668	4.548815	5.711608	2.079442
Maximum	8.980739	4.750303	5.863738	2.525729
Minimum	8.548013	4.220026	5.390824	0.788457
Std. Dev.	0.103622	0.148164	0.135683	0.238024
Skewness	-0.297865	-0.258354	-0.576898	-2.982695
Kurtosis	2.384611	1.834079	2.298791	17.50796
Jarque-Bera	1.528328	3.388248	3.797789	512.6389
Probability	0.465723	0.183760	0.149734	0.000000
Sum	439.9402	226.0043	285.0728	102.6692
Sum Sq. Dev.	0.526142	1.075680	0.902083	2.776108
Observations	50	50	50	50
Correlation Matrix				
LNGDPR	1.000000			
LNM1	0.827000	1.000000		
LNM2	0.854000	0.972000	1.000000	
LNR	0.242000	0.254000	0.316000	1.000000

Neglecting the potential impacts of structural breaks in time series can significantly affect their stability. Specifically, if the effects of potential structural breaks are disregarded, Augmented Dickey-Fuller (ADF) tests may not accurately detect the presence of a unit root. This can lead to incorrect conclusions regarding the degree of integration. Given that Jordan has experienced various economic fluctuations that could potentially introduce structural interruptions in the time series throughout the sample period, the Zivot and Andrews test was employed. The results of this test, presented in Table 3, were considered for a single interval, similar to the ADF test. The findings from the Zivot and Andrews test indicate that rejecting the null hypothesis of unit root becomes challenging for the variables under consideration, except for the real interest rate.

In order to examine the co-integration relationship among the variables that describe the demand for money, the Johansen methodology will be employed. This method is particularly suitable since all the variables are integrated of order 1 (I(1)), regardless of the presence or absence of structural breaks, except for the real interest rate in the interval test. To determine the number of lag periods for the VAR equation used in testing co-integration, Akaike's information criterion is employed. Three lag periods are included in the equation for the demand for narrow money, while two lag periods are included in the equation for the demand for broad money. The Johansen test procedure begins by testing the zero integration equations (rank (r) = 0) and then proceeds to test the first null hypothesis that has not been rejected. If the null hypothesis of the absence of a co-integration

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Table 2: Results of the unit root test ADF

Variable	Model	Level		First Differences	
		Statistic [CV 5%]	Lags	Statistic [CV 5%]	Lags
Lnm1	T&C	-2.026 [-3.506]	1	-5.759** [-3.506]	0
	C	-1.057 [-2.923]	1	-5.856** [-2.923]	0
	N	1.784 [-1.947]	1	-5.433** [-1.947]	0
Lnm2	T&C	-1.975 [-3.504]	0	-6.215** [-3.506]	0
	C	-2.888 [-2.922]	0	-5.769** [-2.923]	0
	N	3.896** [-1.947]	0	-4.753** [-1.947]	0
lnr	T&C	-2.235 [-3.526]	9	-2.239 [-3.529]	9
	C	-2.279 [-2.936]	9	-2.588 [-2.938]	9
	N	0.562 [-1.949]	9	-2.630** [-1.949]	9
LnGDPr	T&C	-0.305 [-3.510]	3	-47.798** [-3.510]	2
	C	-4.838 [-2.926]	3	-38.442** [-2.926]	2
	N	0.665 [-1.948]	3	-18.046** [-1.948]	2

Notes: T&C = Trend & Constant, C = Constant, N = None, CV = Critical Value. ** indicates rejection of the unit root hypothesis at 5% significance level. All variables are I(1) according to unit root test results.

Table 3: Unit root test with one structural fraction, Zivot and Andrews Test

	Level		First Diff.	
	ZA_I	ZA_T	ZA_I	ZA_T
m1	-3.443	-4.729	-6.392**	-7.106**
Lags	0	9	0	1
Break	2012Q1	2012Q4	2019Q4	2016Q4
m2	-3.959	-3.642	-7.005**	-6.959**
Lags	0	0	0	0
Break	2013Q1	2014Q4	2017Q1	2012Q4
r	-8.393**	-7.922**	–	–
Lags	0	0	–	–
Break	2015Q1	2016Q1	–	–
gdpr	-5.037**	-3.226	–	-49.745**
Lags	3	3	–	2
Break	2013Q4	2016Q4	–	2012Q4

Notes: gdpr: real GDP, m1 and m2, respectively, narrow and broad money supply, and r is the interest rate, and all the series in natural logarithmic form. ZAT represents a model with a structural fraction in both the trend and the constant term, while ZAI is a model with an interval in the constant term (intersection) ** refers to rejection of the null hypothesis of the unit root at significance level 5.

vector can be rejected, it indicates the presence of a co-integration relationship. The results of the Johansen test for co-integration are presented in Tables 4 and 5.

The trace tests in Tables 4 and 5 in the logarithmic form of the demand for money indicate the existence of one co-integration equation (r = 1), also they indicate zero co-integration equations according to the semi-logarithmic specifications at the significance level of 5%. These findings give statistical proof for the benefit of the demand for money relationship.

Table 4: Co-integration test for demand for narrow money (M1)

H_0	H_1	Trace Statistic	Critical Value (5%)	Prob.**
r = 0	r = 1*	44.57309	29.79707	0.0005
r = 1	r = 2	14.36195	15.49471	0.0735
r = 2	r = 3	0.076583	3.841466	0.7820

Trace test indicates 1 cointegrating eqn(s) at 0.05 level
* denotes rejection of hypothesis at 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Table 5: The co-integration test for demand for broad money (M2)

H_0	H_1	Trace Statistic	Critical Value (5%)	Prob.**
r = 0	r = 1*	61.96139	29.79707	0.0000
r = 1	r = 2*	–	–	0.0026
r = 2	r = 3	1.790194	3.841466	0.1809

Trace test indicates 1 cointegrating eqn(s) at 0.05 level
* denotes rejection of hypothesis at 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

The current analysis focuses on a dynamic regression model (equation 5), taking into account the findings of Ireland [20] who suggested incorporating lags and leads of $\Delta \ln(r)$ and $\Delta \ln(Yr)$ to control for the potential relationship between these variables and the "residual" from the co-integration relationship of equation 3 ($\ln(M/P)$, $\ln(r)$, and $\ln(Yr)$). Consequently, a dynamic OLS estimation is conducted with lag and lead time periods (p) for $\ln(M/P)$, $\ln(r)$, and $\ln(Yr)$.

Table 6 presents the estimated intercept coefficients and slopes obtained from the dynamic regression using least squares, considering the long-term relationship with lags and leads (p) on $\ln(r)$ and $\ln(Y/P)$. The analysis accounts for consistent autocorrelation errors and generates Newey-West heteroskedasticity and autocorrelation based on different autocorrelation values of the regression error (q).

Based on the results displayed in Table 6 and Table 7, the elasticity of money demand with respect to the interest rate ranges from -0.28 to -0.41, aligning with the expected

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Table 6: Estimate Dynamic Least Squares (DOLS) for (M1)

$\ln(M_1/P) = \alpha + \beta_y \ln(Y/P) + \beta_i \ln r$				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
gdpr	2.654234**	0.140729	18.86054	0.0000
i	-0.409930**	0.158833	-2.580877	0.0218
c	-18.48490**	1.102538	-16.76577	0.0000
R-squared: 0.989270		Mean dep. var: 4.539604		
Adj. R-squared: 0.970875		S.D. dep. var: 0.125053		
S.E. regression: 0.021342		Sum sq. resid: 0.006377		
** indicates significance at the 5% level.				

indications from economic theory. The estimated coefficients indicate that the interest rate elasticity of money demand differs from zero. Additionally, the income elasticity of money demand ranges from 1.78 to 2.65, with positive signs consistent with economic theory. The standard errors of the estimates further confirm that the income elasticity of money demand differs from zero.

Table 7: Estimate Dynamic Least Squares (DOLS) for (M2)

$\ln(M_2/P) = \alpha + \beta_y \ln(Y/P) + \beta_i (\ln r)$				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
gdpr	1.779725**	0.101826	17.47808	0.0000
i	-0.279726**	0.113705	-2.460116	0.0275
c	-9.531333**	0.797420	-11.95272	0.0000
R-squared: 0.992418		Mean dep. var: 5.721064		
Adj. R-squared: 0.979420		S.D. dep. var: 0.102855		
S.E. regression: 0.014755		Sum sq. resid: 0.003048		
** indicates significance at the 5% level.				

4.1 The money demand function's stability

The CUSUMSQ test, which was developed by Brown, Durbin, and Evans [21], was applied in this work to evaluate the stability of the coefficients in the multiple regression model. The premise behind the coefficient stability null hypothesis is that there won't be any structural alterations over time. The CUSUMSQ test indicates that any deviations of the sequence values from the expected bounds would point to a possible structural change.

The study conducted by Oskooee emphasized that the presence of co-integration does not necessarily imply the stability of the estimated parameters over time. Therefore, the CUSUMSQ test was employed to evaluate the stability of the coefficients estimated through dynamic regressions, as presented in Tables 6 and 7. The CUSUMSQ test examines whether the cumulative sum of squares of the recursive residuals falls within the 5% significance level.

If the cumulative sum of squares of the residuals stays within the critical limits, it indicates that the estimation of coefficients is stable. Figures 1 and 2 demonstrate that the chart remains within the critical boundaries. This indicates that the stability of (M1) and (M2), as well as the demand for money and its estimated coefficients over the past decade, have not been influenced by Jordan's economic liberalization and financial growth in the 1990s.

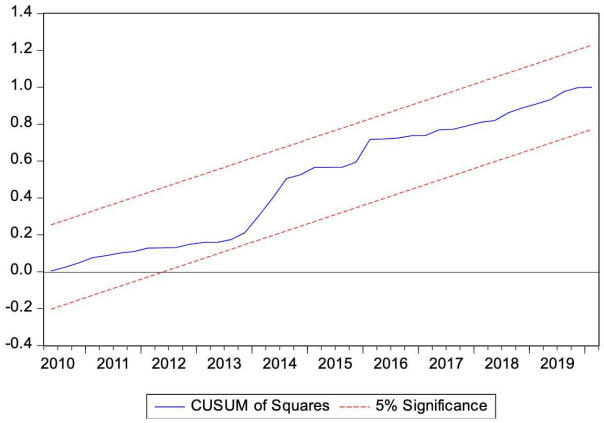

Fig. 1: Cumulative Sum of Squares of Recursive Residuals

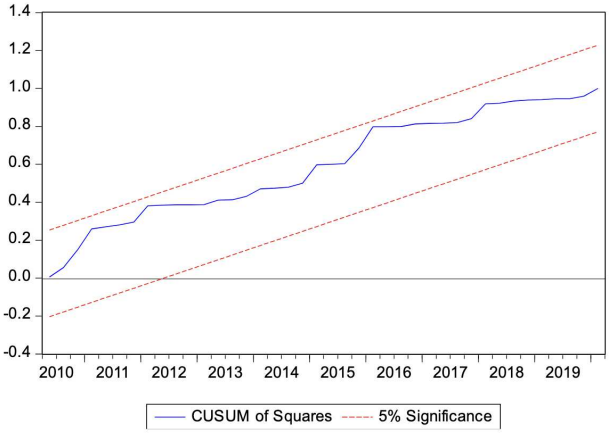

Fig. 2: Cumulative Sum of Squares of Recursive Residuals

5 Discussion

The research variables' determinants were investigated with the Dynamic Least Squares (DOLS) method. The results showed that the demand for both M1 and M2 money in Jordan stayed constant throughout the research period.

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The positive coefficient for income in the case of money demand M1 is 2.65. Consequently, there is a 2.65% increase in the demand for strict monetary policy for every 1% increase in income. The correlation between money supply M2 and income was positive with a coefficient of 1.78. This signifies that a 1% increase in income results in a 1.78% growth in broad money demand in Jordan. This positive result supports the Keynesian theory of money demand. Keynes (1936) discovered that income is the main factor affecting demand for money due to transactions; an increase in income leads to an increase in purchases and, in turn, an increase in the demand for money.

Concerning the interest rate, the coefficients show notable negative values of -0.41 for M1 and -0.28 for M2. The Keynesian theory of money demand aligns with these findings. The need for money is often influenced by the balance between the advantages of cash liquidity and interest. In addition, Keynes stated that the demand for money for speculative reasons is affected by changes in the interest rate, which is one of the costs of holding onto money.

The results of this study are similar to those of Zu'bi and Al-Sawaie [10], Shawaqfeh [12], Zyoud and Al Sawaie [11], Al Sawaie [22], Al Sawaie and Abbas [23], and Saed and Shawaqfeh [13]. It was noted that the stability of the estimated coefficients for money demand was not compromised by the diversification of financial liberalization and advancements in e-payment technology.

6 Conclusion

Examining Jordan's money demand function and stability from 2008 to 2020 was the focus of the current study using quarterly data. The main focus of the investigation in the liquidity preference framework was the relationship between real money balances (M/P), interest rates (i), and income (Y). We examined the equation for money demand and analyzed its elasticities. Based on the results, the logarithmic model aligned with economic principles. To evaluate stability, a CUSUMSQ stability test and co-integration analysis were carried out, using the method outlined by Oskooee [24].

The outcomes align closely with Keynes' theoretical framework, which points to income and interest rates as the primary determinants of money demand in all economies. However, the findings are consistent with most prior studies carried out in wealthy and developing countries. This implies that in order to adopt the framework of targeting monetary aggregates, central banks need to consider these factors. This will enhance the model's effectiveness in predicting and creating policies. The financial goals include stable prices, robust GDP growth, low inflation, appropriate exchange rates, and higher investment and savings. Therefore, the findings of the research provided Jordan with a basis to create and execute a prosperous financial plan.

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