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ANALYSIS OF THE IMPACT OF TRADE OPENNESS ON MACROECONOMIC STABILITY

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Abstract

Macroeconomic stability is of the great importance for the global and national economies today. Likewise, the economic stability is an important economic indicator at the sectoral and firm level. In this context, the macroeconomic stability is an indispensable public good for all the economic units today. Country and regional economies attach great importance to the sustainability of macroeconomic stability, on the other hand, they develop important policies and strategies to maintain macroeconomic stability. In this study, the impact of trade openness on the macroeconomic stability is analysed for 2019 and 137 countries. According to the results of the OLS regression analysis, it has been found that the level of the trade openness and the stability of the financial system have statistically the same and significant effects on the macroeconomic stability, which is original aspect of the study. As a result, the correct design and implementation of the foreign trade policies and the soundness of the financial system play an indispensable role in strengthening the macroeconomic stability of the countries.

Keywords: *Macroeconomic Stability, Trade Openness, Financial System*

TİCARİ AÇIKLIĞIN MAKROEKONOMİK İSTİKRAR ÜZERİNDEKİ ETKİSİNİN ANALİZİ

Öz

Makroekonomik istikrar günümüzde küresel ve ulusal ekonomiler için büyük önem arz etmektedir. Aynı şekilde, ekonomik istikrar, sektörel ve firma düzeyinde de önemli bir iktisadi göstergedir. Bu bağlamda, makroekonomik istikrar günümüzde, tüm iktisadi birimler için vazgeçilmez bir kamusal maldır. Ülke ve bölge ekonomileri, makroekonomik istikrarın sürdürülebilirliğine büyük önem atfetmektedirler, diğer yandan ise makroekonomik istikrarı korumak için önemli politika ve stratejiler geliştirmektedirler. Bu çalışmada, ticari açıklığın makroekonomik istikrar üzerindeki etkisi 2019 yılı ve 137 ülke için analiz edilmiştir. EKK regresyon analiz sonuçlarına göre, ticari açıklık düzeyi ve finansal sistemin istikrarının, makroekonomik istikrar üzerinde istatistiksel olarak aynı yönde ve

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anlamlı etkiye sahip olduğu bulunmuştur ki bu sonuç çalışmanın özgün yönüdür. Sonuç olarak, ülkelerin makroekonomik istikrarlarını güçlendirmelerinde, dış ticaret politikaları ve finansal sistemin sağlamlığının doğru tasarlanıp uygulanması vazgeçilmez role sahiptir.

Anahtar Kelimeler: *Makroekonomik İstikrar, Ticari Açıklık, Finansal Sistem*

Introduction

Although macroeconomic stability is of great importance for global economy and national economies, there is no single approach agreed in the literature for defining and measuring macroeconomic stability. The basket of different macroeconomic indicators can be considered as an indicator of macroeconomic stability. However, macroeconomic stability should include reasonable volatility in economic indicators and include a steady improvement in social welfare growth. In this context, macroeconomic stability includes the stability of economic growth, price stability, financial stability, sustainability of the public debt burden, and the sustainability of the external balance of the economy. In the context of macroeconomic variables, the level and duration of the volatility in economic growth, inflation rate, exchange rates, interest rates, balance of payments indicators, public debt indicators, financial and banking sector indicators are important.

The international supply chain is positioned based on the comparative advantages between the most cost-effective production regions and the most profitable sales regions. This situation contributes to the development of international commercial and financial relations between countries. International trade and international capital flows increase in this globalization process. However, if the international competitiveness of the countries is strong in the face of global competition, they can gain net income from international trade. Otherwise, the production capacities of countries may be adversely affected in the face of global competition. The weak international competitiveness of countries and companies may cause micro and macroeconomic variables in countries to drift away from their usual balances and show excessive volatility over time. In this case, trade openness may lead to the deterioration of macroeconomic stability in some countries. On the other hand, if countries can keep up with global competition, it can contribute to the macroeconomic stability of the country by enabling countries to penetrate more markets in international markets.

In this context, in this study, the impact of trade openness on macroeconomic stability is analysed for 2019 and 137 countries by using cross-sectional econometric techniques.

The original aspect of the study according to the literature (as far as we know) is that it is the first study to analyse the effects of trade openness and financial system stability variables on macroeconomic stability (using the definition in World Economic Form Global Competiveness Forum (WEF GCI) by covering 137 countries in the world.

1. LITERATURE ON MACROECONOMIC STABILITY AND TRADE OPENNESS

In economic theory, there is no commonly accepted approach to the effect of trade openness on macroeconomic stability or growth volatility. (see. Hawkins, 1948; Dornbusch, 1981 and Ocampo, 2008). Empirical studies on the subject can find different results according to country groups, analysis periods, and the methods they use. However, the general trend is that countries that can properly manage trade and financial openness benefit from these openness policies; otherwise, volatility in the economy increases. For this reason, countries should prefer the policies of transition to open economy gradually at the right time and in the right way according to their economic structures.

Increasing trade openness has the potential to affect macroeconomic stability through different channels and in different ways. The country's capacity to manage the positive and negative effects of trade openness will determine the course of net economic gain.

Trade openness can increase productivity and support economic growth due to increased competition and technology transfer. On the other hand, increasing product variety and price competition will contribute to increasing the welfare of consumers. However, increased trade openness could increase vulnerability and volatility as the country requires concentration and specialization in certain sectors to be successful in global competition.

The increased trade openness will also cause local producers to face increased competition. If firms become able to cope with international competition with trade openness, the country's economic gains from trade openness will increase. In addition, the increase in the trade openness of the country may contribute to the increase of technology transfer to the country directly and indirectly. On the other hand, if the imported products, which increase with the trade deficit, are replaced with domestic goods, then the country may face an increasing foreign debt problem. Managing the increasing external debt may lead to increased volatility risks on exchange rates and interest rates and ~~to~~ adversely affect macroeconomic stability. As a result, the net effect of the increasing trade deficit on the macroeconomic stability of the countries will depend on the capacity of the country to correctly manage the benefits and costs of the increasing trade openness. Countries that cannot cope with the increasing global competition due to the increasing trade openness may face problems of balance of payments, financial and price stability, and public sector debt management. On the other hand, if countries and companies can manage the increasing trade openness successfully, the country's global competitiveness will increase and they will be able to increase the economic prosperity by getting more shares from the world markets. Thus, developed countries with higher capacity to cope with the global competition may have higher net gains from increased trade openness, while less developed countries with the capacity to cope with the global competition may have lower gains from increased trade

openness. This situation reveals the importance of developing policies and strategies for the countries to cope with global competition more strongly, instead of choosing economic models that restrict international trade.

There are many studies in the literature on determining the variables that affect macroeconomic stability. Macroeconomic stability variable is an important research variable in terms of both determining the variables affected by it and understanding the variables that it affects.

The different results on the factors affecting macroeconomic stability and the relationship between macroeconomic stability and trade openness in the literature are summarized in Table.1.

Table.1. Literature on Macroeconomic Stability and Trade Openness

Author(s)	*Data and Method*	*Findings*
Al-Shayeb & Hatemi-J (2016)	United Arab Emirates 1986-2013 The asymmetric generalized impulse response functions and the asymmetric causality tests developed by Hatemi-J	For the United Arab Emirates, the relationship between trade openness and economic performance has been analysed using asymmetric causality tests. According to the results of the study, it has been observed that positive permanent shocks in the trade openness have significant positive effects on economic performance. On the other hand, no significant impact of negative permanent shocks in the trade openness on economic performance was observed.
Giovanni & Levchenko (2009).	Developing and developed countries, 1963–2003 Industry-level panel dataset of manufacturing production and trade, Cross-sectional and panel data methods	In the study on the 1963-2003 period and 28 manufacturing sectors, it was found that the volatility in sectors more open to international trade was higher. It has been determined in the study that there is a significant relationship between trade openness and general volatility.
Abubaker, (2015).	33 countries, 1980 -2009, panel data methods	In this study, it was found that trade openness increased output volatility. The study also found that trade openness leads to less output volatility in higher developed countries.
Bejan (2006).	developed and developing countries 1950-1975 panel data methods	It has been found that ~~the~~ trade openness generally increases ~~the~~ output volatility. On the other hand, it has been determined that trade openness does not affect production negatively in developed countries and increases output volatility in developing countries. However, controlling for risk measures such as government size, terms of trade fluctuation, and export concentration, the effect of trade openness on output

		volatility was found to be negative.
Haddad et al, (2013)	77 developing and developed economies 1976–2005 GMM Estimator	For the 1976–2005 period 77 emerging and developed economies, the effects of trade gap on output volatility were analysed. In countries with export diversification, trade openness has been found to have negative effects on output volatility.
Jansen (2004)	Least Developed Countries, 1980-2000 Regression	It has been found that small economies and least developed countries can reduce the effects of trade openness on output volatility by further diversifying their exports.
Easterly et al., (2001)	Developing Countries OECD Countries 1960-1997	In the initial phase of the growth of the financial system, it contributes to a certain extent ~~to~~ the management of risks and may have an effect to reduce the volatility in the economy, while the volatility may increase due to the increase in risks in the case of excessive growth of the financial system.
Köse et al., (2003)	Different Income Groups 1960-1999 Panel Regression	The impact of international financial integration on macroeconomic volatility has been studied for the period 1960-99. According to the analysis results, it was found that output volatility decreases over time, but the volatility in consumption increases due to financial integration and up to a threshold.
Köse et al., (2006)	Emerging economies, OECD Countries 1960-1990	The study found that commercial and financial integration weaken the negative growth-volatility relationship.
Baldwin (2003	Studies in the literature were examined.	It is stated that free trade policy can contribute to economic growth with strong institutional structure, correct money, fiscal and exchange rate policies.
Cavallo& Frankel (2008).	141 Countries 1970-2002 Panel Regression	The study found that countries with low trade integration are more vulnerable to sudden stops and exchange rate crises.
Frankel & Romer (1999).	150 Countries 1985 OLS Regression	It has been found that trade has a positive effect on income level.
Rodriguez & Rodrik (2000).	Different Country Sets 1976-1985 OLS, IV methods	In the study, it has been determined that the effect of open trade policies on economic growth is low.

Wacziarg & Welch (2008)	Different Country Sets 1970-1989 Panel Regression	In the study, it has been determined that commercial liberalization increases economic growth, although it differs according to countries.
Winters (2004)	Studies in the literature were examined.	In the study, it has been determined that commercial liberalization has a positive effect on economic growth by triggering an increase in productivity.
Karras (2006).	56 Countries 1950-1998, Panel Regression	In the study, it has been determined that trade openness and economic size have a negative and significant effect on production, consumption, investment and exchange rate volatility.
Fujii (2017)	Japan's regional income accounting and public finance data. 1996-2009, cross-sectional regression	The study found that trade openness has significant and positive effects on output volatility.
Mireku et al., (2017)	Ghana 1970-2013 ARDL bound test	The study found that trade openness has significant and positive effects on output volatility in the short and long run.
Mekonnen & Dogruel (2017)	29 Countries 1981-2010 Panel GMM	In the study, for the period 1981-2010, according to the analysis results for 29 countries in Sub-Saharan Africa, it was determined that the commercial and financial openness significantly reduced the growth volatility.
Aigheyisi& Isikhuemen (2018).	Nigeria 1970-2015 ARDL test	In the study, for the period 1970-2015, according to the analysis results for Nigeria, it was determined that the commercial and financial openness increased the long-term growth volatility.
Tang& Abosedra (2020).	Malaysian economy 1972-2018 ARDL Bound Test	In the study, according to the analysis results for Malaysian economy for the period of 1972-2018, it is determined that financial openness decreases the economic growth volatility in the long run, while the trade openness increases the growth volatility.
Xue (2020)	50 Countries 1997-2014 Dynamic panel threshold model,	In the study, according to the analysis results covering 50 countries for the period 1997-2014, it was determined that the development of the financial system reduced the growth volatility. However, volatility has been found to increase in high inflation regimes.

2. EMPRICAL ANALYSIS FOR THE EFFECTS OF TRADE OPENNESS ON MACROECONOMIC STABILITY

In this section, the impact of trade openness on macroeconomic stability is analysed for 2019 and 137 countries by using OLS estimator for regression analysis.

2.1. Data

Table 2. shows the information for data and variables. Data source is the Global Competitiveness Index 4.0 Dataset of World Economic Forum (WEF) for 2019 year

Table 2. Data and Variables

Variable	Definition	Year	Country
Macroeconomic stability	*The Macroeconomic stability pillar of the Global Competitiveness Index 4.0 assesses the level of inflation and the sustainability of fiscal policy, (1-100 scale, 100 best)*	*2019*	*137*
Trade openness	*Trade openness is a measure of the international trade volume which are sum of exports and imports as a share of GDP for a country. Subcomponents for Trade openness are prevalence of non-tariff barriers, trade tariffs, complexity of tariffs, border clearance efficiency (1-100 scale, 100 best)*	*2019*	*137*
Financial system	*The Financial system pillar of the Global Competitiveness Index 4.0 assesses the depth, namely the availability of credit, equity, debt, insurance and other financial products, and the stability, namely, the mitigation of excessive risk-taking and opportunistic behavior of the financial system (1-100 scale, 100 best)*	*2019*	*137*
Source: WEF (2019) the Global Competitiveness Index 4.0 Dataset.			

2.2. Method

The method of the model is multiple regression analysis with the Variance-covariance matrix of the estimators, vce (Robust). Equation 1 is estimated to analyse the effects of trade openness on macroeconomic stability with a control variable that is the financial system score of the country.

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta X_{2i} + u_i \qquad \text{Eq.1.}$$

where $i = 1,2,\dots,N.$

Y_i : *Macroeconomic stability*

X_{1i}: *Trade openness,*

X_{2i} : *Financial system*

u_i: *Error term*

expected signs for the coefficients is as follow

$\beta_1 > 0;\ \beta_2 > 0$

2.3. Empirical Findings

The descriptive statistics for the variables are given in Table.3. Macroeconomic stability's mean is 81.31, the mean of trade openness is 57.9, the mean of the financial system is 62.77.

Table.3. Descriptive Statistics for the Variables

	Financial system	Macroeconomic stability	Trade openness
Mean	62.774	81.307	57.898
Median	60.000	75.000	58.000
Maximum	91.000	100.000	89.000
Minimum	29.000	34.000	35.000
Std. Dev.	14.132	15.420	9.147
Skewness	0.332	-0.326	0.361
Kurtosis	2.356	2.586	4.124
Jarque-Bera	4.880	3.405	10.179
Probability	0.087	0.182	0.006
Observations	137	137	137

Table.4. shows Equation.1 estimation results. OLS estimator is used to estimate the model. Estimated model is overall statistically significant based on the F test result. R-squared is 0.585. The model has no multiple linear collinearity problem based on the indicator VIF (1.56) for the explanatory variables. All the diagnostic test results meet the assumptions of the OLS estimator.

Explanatory variables coefficients are statistically significant at the 0.05 significance level. The results for the sign of the explanatory variables coefficients are in line with the expectations. Trade openness and financial system affect the macroeconomic stability in the same direction. The increasing level of trade openness contributes to strengthening macroeconomic stability. The increasing foreign trade volume of the country provides a stronger integration with the world value chain. This situation decreases the fragility structure of the countries and increases the level of stability.

Table.4. Equation 1 OLS Estimation Results

Explanatory variables	Coef.	Std. Err.	t	Prob.
Financial system	0.704	0.076	9.269	0.000
Trade openness	0.298	0.117	2.542	0.012
Cons	19.839	5.542	3.579	0.001
R-squared 0.585				
Adjusted R-squared 0.579				
F-statistic 94.384				
Prob(F-statistic) 0.000				
Diagnostic Tests Results:				
Jarque-Bera Normality test: Stat:0.377, Prob.=0.828				
Breusch-Godfrey Serial Correlation LM Test: Stat:2.017, Prob.=0.376				
Heteroskedasticity Test: White: Stat:6.083, Prob.=0.316				
Ramsey RESET Test: Stat:2.95, Prob.=0.086				
Trade openness, VIF=1.56				
Financial system, VIF=1.56				

On the other hand, the strengthening of the country's financial system plays an important role in strengthening macroeconomic stability. As a result, increasing foreign trade integration and a strong financial system have accumulated as important determinants of strengthening macroeconomic stability. The soundness of the banks, low non-performing loans, reasonable levels of exchange, interest, and credit risks contribute to the strengthening of the financial system and thus macroeconomic stability.

Our findings in our studies seem to be compatible with the current literature to a great extent. The conclusion that trade openness reduces volatility in macroeconomic indicators and increases stability has been confirmed in this study.

Conclusion

In this study, the effects of trade openness and financial system on macroeconomic stability are analysed. Macroeconomic stability is an important economic indicator at the global and national level on the one hand, and on the sectoral and firm-level on the other. Among the most important components of macroeconomic stability are price stability, sustainability of the public debt burden, and financial stability. For this reason, countries are implementing important economic policies to ensure price and financial stability and the sustainability of the public debt burden.

In the study, the impact of the trade deficit on macroeconomic stability is analysed for 2019 and 137 countries. According to the OLS regression results, it has been found that the level of trade openness and the stability of the financial system have statistically the same and significant effects on macroeconomic stability.

The correct design of trade openness policies of countries plays an important role in increasing their export capacities and ensuring foreign demand for sustainability in economic growth. Likewise, the strengthening of the stability of the financial system shows the soundness of the financial structure of the banking sector in particular. A sound banking system also reduces the vulnerability of countries and firms against internal and external economic shocks and increases their stability.

It is important for countries to gradually implement trade and financial openness policies for their economic conditions, to benefit more and suffer less from these policies.

As a result, the correct design and implementation of foreign trade policies and the soundness of the financial system play an indispensable role in strengthening the macroeconomic stability of countries. For this reason, sustainable macroeconomic stability has a critical role in terms of sustainable economic development and social welfare.

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