# Box 5.1

Country Risk Premium and Macroeconomic Conditions When Global Financial Conditions are Tighter

Recently, Turkey's risk premium has negatively decoupled from other emerging economies (Charts 1 and 2). Economic factors specific to Turkey were effective in this decoupling in addition to the rise in US bond yields and a decline in international investors' risk appetite as the normalization process in monetary policy of advanced economies become more evident. This box analyzes the economic indicators determining risk premium to shed light on these evaluations. [1]
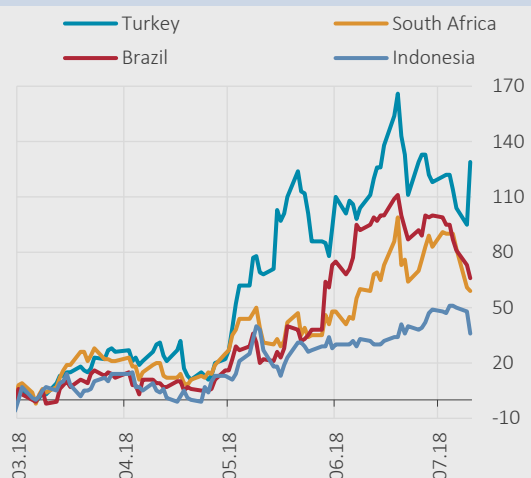
Chart 1: Turkey-EMBI Global (Monthly Average, Basis Points)
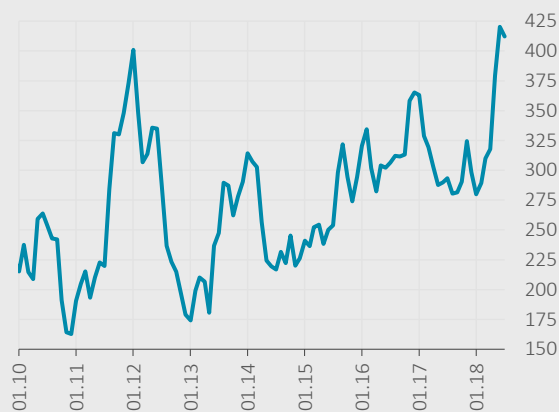
Source: Bloomberg.　　　　Latest Observation: July 2018.

Chart 2: Change in EMBI Global in EMEs (Basis Points, 28.02.2018=0)

Source: Bloomberg.　　　　Latest Observation: 10 July 2018.

The risk premium is excess return that an investor asks for extra risk relative to a risk-free asset (such as US bonds) with the same maturity. [2] As discussed in the "External Vulnerability" literature[3], the risk premium demanded by the foreign investor depends on several factors such as the country's current account deficit, the ratio of the country's international reserves to foreign exchange requirement, budget outlook, inflation level, sensitivity of company balance sheets to exchange rates and interest movements and other country-specific factors as well as global factors (i.e. global risk appetite, global trade outlook etc.).

Our main question is this: how are the changes in risk premium affected by the above-listed macroeconomic indicators reflecting external vulnerabilities and are these indicators more influential when global financial conditions are tighter?

In the light of these evaluations, the determinants of risk premiums for 8 peer emerging economies were studied in an econometric framework. Countries studied are: Brazil, Colombia, Indonesia, Malaysia, Mexico, Peru, South Africa and Turkey. Sampling period is 2005Q1-2017Q4. The method employed is dynamic system generalized method of moments (system GMM).[4] JP

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[1] For details please see Akçelik and Fendoğlu (2018).

[2] This description is based on the assumption that the two assets are in the same currency denomination, are equally liquid, have the same transaction costs and the international investor has ample sources of funding.

[3] For further details on related literature, you can take a look at the IMF reports listed in the references and the references cited in these reports.

[4] The system GMM method uses the lagged effects of explanatory variables as instruments to mitigate the endogeneity problem.

Morgan's Emerging Markets Bond Index Global (EMBIG) has been used as the risk premium.[5] This index measures the difference between the weighted average of yields of bonds issued by Treasury of related emerging country in US dollar terms and the US Treasury bond yields with similar maturity and type.

Table 1: System GMM Regression Results

	EMBI Global (Logarithmic Change)
EMBI Global (Logarithmic Change, t-1)	0.225***
	(0.025)
Current Account Balance /GDP (Change)	-0.020
	(0.018)
Current Account Balance /GDP (Change) *** Dummy Variable** (1 if VIX Change > 0; 0 if VIX Change < 0)	-0.045***
	(0.016)
Gross International Reserves/ GDP (Change)	0.008
	(0.010)
Gross International Reserves/ GDP (Change) *** Dummy Variable** (1 if VIX Change > 0; 0 if VIX Change < 0)	-0.028***
	(0.012)
Public Budget Balance/ GDP (Change)	0.028***
	(0.001)
Public Budget Balance/ GDP (Change) *** Dummy Variable** (1 if VIX Change > 0; 0 if VIX Change < 0)	-0.042***
	(0.004)
Real Annual GDP Growth (Change)	-0.008
	(0.011)
CPI Annual Inflation (Change)	0.015
	(0.015)
International Country Risk Guide (ICRG) Index (Logarithmic Change)	-0.680
	(0.461)
Volatility Index (VIX) (Logarithmic Change)	0.570***
	(0.013)
Number of Observations	400
Number of Countries	8

Standard deviations are indicated in parenthesis. ***, **, * denotes statistical significance of 1%, 5% and 10%, respectively.

Table 2: Long-term impacts of Macroeconomic Changes on Country Risk Premium[6]

	In Periods of VIX Increase	In Periods of VIX Decrease
1 Percentage Point Rise in Current Account Deficit / GDP Ratio	%8.32***	%2.56
1 Percentage Point Drop in International Reserves / GDP Ratio	%2.58***	-%1.01
1 Percentage Point Drop in Budget Balance / GDP Ratio	%1.81***	-%3.61***

***, **, * denotes statistical significance of 1%, 5% and 10%, respectively.

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[5] Average maturity of EMBI Global Turkey bonds is 12.2 years. In this context, EMBI Global reflects risks pertaining to Turkey's long-term outlook.
[6] These ratios are calculated by dividing short-term effects by (1- EMBI Global (Logarithmic Change, t-1)) coefficient. For instance, when the change in VIX is positive, the long-term effect of current account balance/ GDP is calculated as (-0.020+ (-0.045)) / (1-0.225) = -8.32%.

The results suggest that in periods of adverse global financial conditions, the external vulnerability indicators affect changes in risk premium considerably and at a statistically significant level (Table 1 and 2)[7,8]. For instance, in periods of decreasing global risk appetite (when VIX rises), a 1 percentage point increase in current account deficit/ GDP ratio pushes up country risk premium by 8.32 percent in the long-term; in periods of positive global conditions, this impact weakens. Similarly, in periods of tighter global financial conditions (when VIX increases), a 1 percentage point drop in the international reserves/ GDP ratio leads to a 2.58 percent rise in country risk premium; whereas this impact is not significantly strong in periods of positive global conditions. A 1-percentage point decline in budget balance/ GDP ratio causes upward decoupling in country risk premium, particularly when global conditions are adverse.

These effects are significantly higher compared to the ones in periods of positive global risk appetite (when VIX is decreasing) (Tables 1 and 2). Similar results have been also found when the US dollar index (DXY) is used for global financial conditions (Table 3).

Table 3: Long-Term Effects of Macroeconomic Changes on Country Risk Premium

	In Periods of DXY Increase	In Periods of DXY Decrease
1 Percentage Point Rise in Current Account Deficit / GDP Ratio	%5.55***	%4.84***
1 Percentage Point Drop in International Reserves / GDP Ratio	%2.78***	-%2.59
1 Percentage Point Drop in Budget Balance / GDP Ratio	%1.60***	-%6.31***

***, **, * denotes statistical significance of 1%, 5% and 10%, respectively.

To sum up, when global financial conditions become tighter, country-specific indicators have stronger effect on country risk premium. Therefore, in order to achieve a lasting improvement in risk premium in periods of decreasing global risk appetite, it is crucial to achieve improvement in these macro indicators.

References

Akçelik, F. and Fendoğlu, S. (2018). "When they count the most? External vulnerability indicators when global financial conditions slide", forthcoming.

IMF (2000). "Debt- and Reserve-Related Indicators of External Vulnerability", Staff Papers. url: https://www.imf.org/external/np/pdr/debtres/debtres.pdf

IMF (2008). "Vulnerability Indicators" url: https://www.imf.org/external/np/exr/facts/vul.htm

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[7] Due to the nature of the estimation method, conditional estimates were used when estimating these effects, assuming other factors were constant. For instance, when calculating the effect of deterioration in the budget balance, the current account deficit, reserves and other explanatory variables have been assumed constant. In this respect, should a worsening of the budget balance accompany a deterioration of the current account balance, the combined impact of the budget balance deterioration on the risk premium would be higher.

[8] The actual values of macroeconomic indicators have been used here. It should be noted that the change in expectations about these indicators would affect the change in risk premium instead of actual changes in these indicators. Our identification assumption here is that changes in expectations are generally in line with actual changes.