



Rethinking the Trade-offs for Monetary Policy in an Era of Globalization

By Enrique Martínez-García*
Federal Reserve Bank of Dallas

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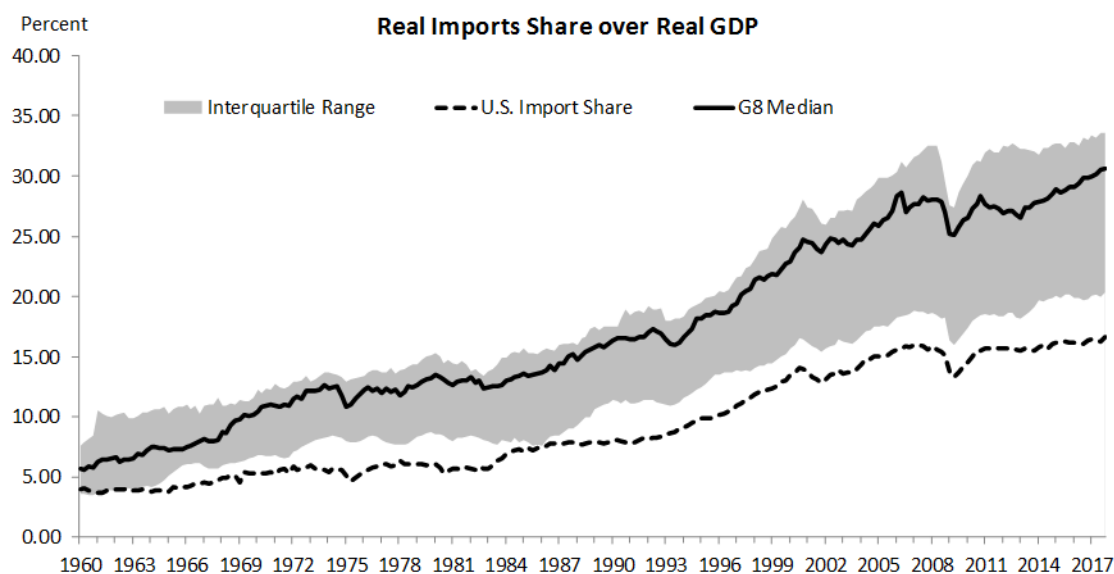
Business cycles among major advanced economies have shifted since the 1960s – notably on macroeconomic volatility and persistence, but also in terms of duration and depth of the cycles and in terms of the predictability, synchronization, and cyclicity of output and inflation. The evidence shows empirical support for a connection between these broad shifts in business cycles and the concurrent wave of globalization broadly consistent with the implications from the workhorse open-economy New Keynesian model. Through the lens of this model, globalization should matter for monetary policymaking – not necessarily because of the ‘fear of losing control’ and being unable to achieve the central bank’s desired policy objectives, but because globalization alters the economic environment under which policymakers operate and, in doing so, changes the relevant trade-offs on macroeconomic stabilization for the central bank.

* [Enrique Martínez-García](#) is a Senior Research Economist and Policy Advisor at the Federal Reserve Bank of Dallas; the views expressed here are those solely of the author and do not reflect those of the Federal Reserve Bank of Dallas or the Federal Reserve System.

A sustained wave of globalization has led to deeper ties in the post-World War II period: The decision to terminate the convertibility of the U.S. dollar into gold in 1971 effectively ended Bretton Woods, ushering in a new era of fiat and free-floating currencies. The international monetary system has significantly evolved since then, leading economies to abandon both the multilateral constraints of Bretton Woods and fixed exchange rates as anchors of the policy framework. Current account and then capital account liberalization followed, deepening trade relations—which had been intensifying in the post-Korean War period—as moving goods across borders became increasingly cheaper and trade as well as financial and other barriers declined (**Figure 1**).

Business cycles across major advanced economies have notably changed since the 1960s: Major advanced economies (U.S., U.K., Germany, France, Italy, Spain, Japan, and Canada, henceforth referred to as the G8 countries) experienced declining inflation rates and somewhat more robust growth after the Great Inflation period of the 1970s. Since the 2008 global recession, the major advanced economies have generally posted weaker growth than in the preceding years while experiencing low inflation. On top of that, Martínez-García (2018) documents a period of declining macro volatility since at least the 1980s (in what became known as the Great Moderation), followed by increasing and diverging inflation volatility patterns since the mid-1990s (**Figure 2.A**). The evidence also suggests significant shifts in inflation persistence which gradually but noticeably declined during the Great Moderation (**Figure 2.B**).

Figure 1. Ties that Bind: Deepening Trade Linkages



Note: Includes U.S., U.K., CA, FR, DE, JP, ES, and IT. Canada data in levels starts in 1961:Q1 and Germany data starts in 1969:Q1. The ratio is defined as real imports of goods and services expressed in percentages over real GDP. The chained volume series are not additive, so imports must be proportionally scaled such that the sum of the subcomponents by expenditures is equal to real GDP.

Sources: Organization for Economic Co-operation and Development; author's calculations

Figure 2.A Macroeconomic Volatility

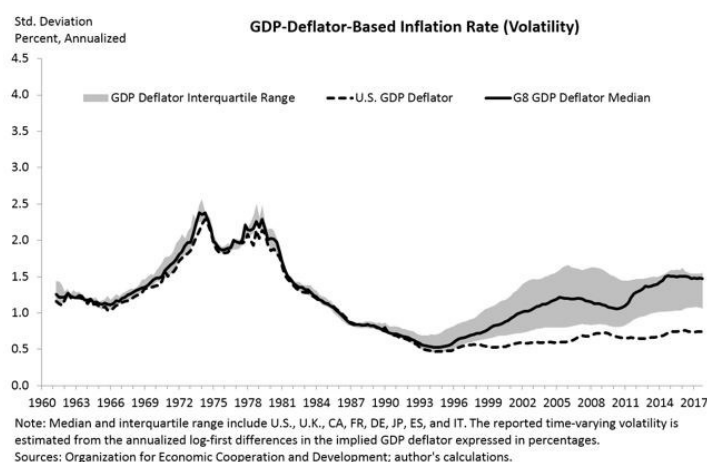
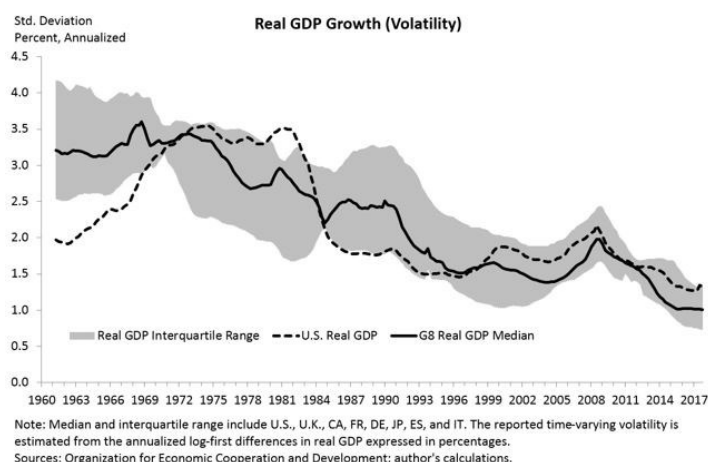
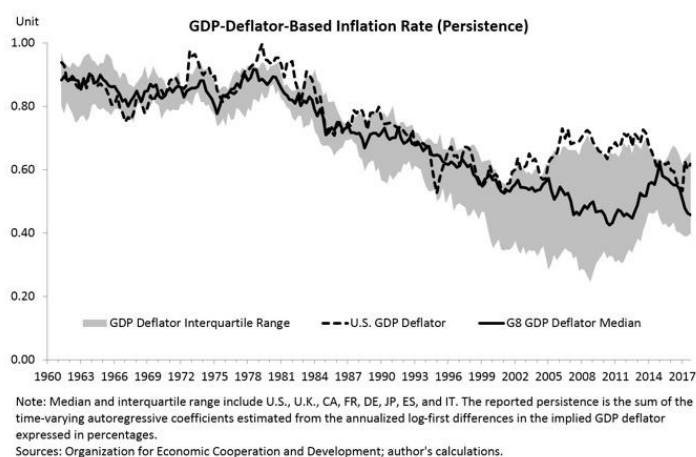
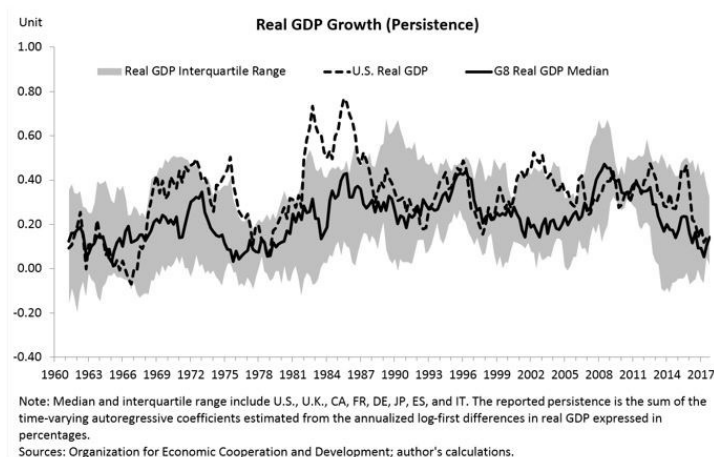


Figure 2.B Macroeconomic Persistence



The main shifts in business cycles observed across major advanced economies can be summarized as follows:

(a) Changes in macroeconomic volatility (**Figure 2.A**):

- i. Gradual yet sizeable declines in real GDP growth volatility since the mid-1970s, predating the onset of the Great Moderation in the 1980s.
- ii. Widespread declines in inflation volatility during the 1980s and early-1990s, after experiencing high volatility in the 1970s accentuated during the oil crises of 1973 and 1979. Rising inflation volatility—mostly concentrated among European countries—and greater cross-country disparities have followed since the mid-1990s. Interestingly, this coincided with tighter monetary arrangements in Europe (the three stages for the implementation of the Economic and Monetary Union among European Union countries started to roll over in July 1990).

(b) Changes in macroeconomic persistence (**Figure 2.B**):

- i. The persistence of real GDP growth has remained fairly stable over time.
- ii. The persistence of inflation was quite high earlier on, but has gradually declined since the late-1970s (leveling off around the time of the 2008 global recession).

- (c) Other features of the business cycle have changed as well (see Martínez-García (2018) for more details):
- i. Contractions became both shorter and less frequent during the Great Moderation, as growth volatility declined (**Table 1**).
 - ii. Forecastability of real GDP growth and inflation based on simple univariate time series models tended to improve as macroeconomic volatility fell. The implications of this for the Phillips curve and Phillips curve-based forecasting models is further explored in Duncan and Martínez-García (2015) and Kabukçuoglu and Martínez-García (2018).
 - iii. The synchronization of real GDP growth across countries remained low and largely stable until it quickly spiked in the aftermath of the 2008 global recession.
 - iv. Before the mid-1990s, the cross-country correlation (synchronization) of inflation was very high and countercyclical. Since then, the cross-country correlation has declined (only gaining some ground after 2008) and inflation has become largely acyclical.

Table 1. Properties of the Classical Cycles

CLASSICAL CYCLES: CONTRACTIONS						
	1960:Q1-1983:Q4			1984:Q1-2017:Q4		
	Frequency (%)	Duration	Growth (%)	Frequency (%)	Duration	Growth (%)
US	19.8	3.0	-2.5	7.4	5.0	-2.3
UK	21.9	8.0	-1.9	8.8	6.0	-2.2
FR	7.3	3.5	-1.8	9.6	4.0	-1.1
DE	20.8	4.0	-2.0	24.3	4.5	-1.1
IT	16.7	4.0	-1.4	28.7	5.5	-1.3
CA	14.6	4.0	-2.7	8.8	4.0	-3.6
JP	0.0	0.0	--	22.8	4.0	-2.6
ES	10.4	3.0	-0.6	19.1	7.0	-2.4
G8 Median	15.6	3.8	-1.9	14.3	4.8	-2.2

CLASSICAL CYCLES: EXPANSIONS						
	1960:Q1-1983:Q4			1984:Q1-2017:Q4		
	Frequency (%)	Duration	Growth (%)	Frequency (%)	Duration	Growth (%)
US	80.2	14.0	3.9	92.6	34.0	3.0
UK	78.1	12.5	2.8	91.2	34.0	2.6
FR	92.7	19.0	3.8	90.4	26.0	2.1
DE	79.2	11.5	4.3	75.7	13.0	2.8
IT	83.3	16.0	5.7	71.3	14.0	1.7
CA	85.4	11.5	4.5	91.2	22.5	2.8
JP	100.0	96.0	5.7	77.2	10.0	2.5
ES	89.6	10.5	3.9	80.9	24.5	3.3
G8 Median	84.4	13.3	4.1	85.7	23.5	2.7

Note: Classical cycles are dated using the Bry and Boschan (1971) algorithm on real GDP data in levels for the U.S., U.K., CA, FR, DE, JP, ES, and IT. Each subsample is treated as a separate period and both complete and incomplete cycles are included. Duration and Growth (log-first differenced, annualized, %) refer to the corresponding median of each cycle phase within each subsample.
Sources: Organization for Economic Cooperation and Development; author's calculation.

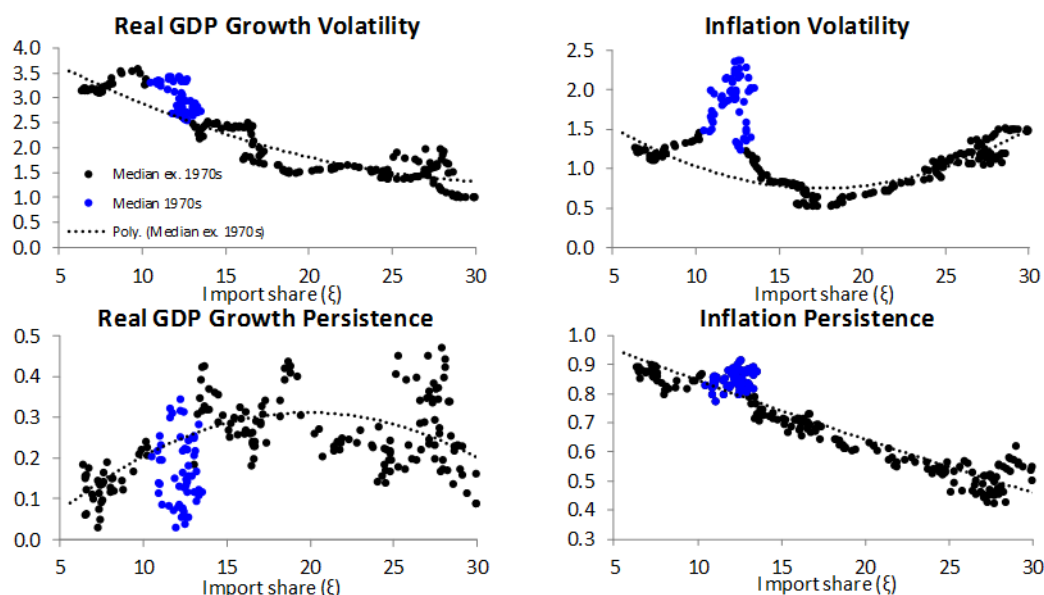
Both theory and evidence suggest a relationship between globalization (trade openness) and the shifting business cycles: A large body of research has investigated the role played by different factors as explanations for the observed changes in business cycles. The literature continues to debate whether the observed business cycle changes—the Great Moderation in particular—are the result of “good luck,” improved macroeconomic policies (particularly better monetary policy), changes in the structure of the economy or structural transformation, or some combination of all of them (Stock and Watson (2003)).

Arguments based on structural transformation postulate that changes in institutions, new technologies, or even globalization can affect the economy’s ability to absorb shocks and alter the propagation of different shocks over the business cycle. The wave of financial globalization unfolding since at least the 1970s (resulting from deepening domestic and international financial markets, increased international capital flows, financial deregulation, etc.) is one of the explanations advocated by Dynan *et al.* (2006), among others. Globalization through trade (increased international trade openness) also features as another prominent structural transformation explanation in the work of Cecchetti *et al.* (2005).

Martínez-García (2018) continues this line of inquiry specifically looking at the impact of trade linkages on cross-country business cycles motivated by the predictions of the workhorse open-economy New Keynesian model (Martínez-García and Wynne (2010)). This class of models suggests that the observed shifts can be partly attributed to (nonlinear) changes in deep structural parameters, and in particular to deepening trade integration (trade openness), as shown in the analytical exploration of this model worked out in Martínez-García (2017).

The findings reported in Martínez-García (2018) indeed show empirical support for a nonlinear relationship between greater trade openness and the reported central tendency patterns of shifting business cycles across the major advanced economies. The illustration in **Figure 3** (a highlight of some of the key findings in Martínez-García (2018)) shows that trade openness indeed has a strong but nonlinear association with key observed business cycle features documented in the data in post-Korean War period, broadly consistent with the implications of the workhorse open-economy model.

**Figure 3. A Closer Inspection of the Empirical Relationship between Macro Volatility/
Persistence and the Import Share (Openness)**
(G8 Medians)



Note: Includes U.S., U.K., CA, FR, DE, JP, ES, and IT. The reported time-varying volatilities are estimated from the annualized log-first differences in real GDP and the annualized log-first differences in the implied GDP deflator expressed in percentages. The reported persistence is the sum of the time-varying autoregressive coefficients estimated on the same data series. The import share is defined as the ratio of real imports of goods and services in percentage over real GDP.

Sources: Organization for Economic Cooperation and Development; author's calculations.

Some implications for our understanding of business cycles and for monetary policymaking: The last wave of global economic integration after the Korean War is a transformative phenomenon that has shaped the world economy for decades and may continue to do so for many decades to come. Globalization has not negated the central banks' ability to influence domestic economic conditions and achieve their macroeconomic stabilization goals (a point forcefully argued by Woodford (2010)). However, what the empirical evidence in Martínez-García (2018) suggests in line with standard open-economy New Keynesian theory (Martínez-García and Wynne (2010), Martínez-García (2017)) is that globalization can impact the economic environment in which central banks must operate:

- a) On the international monetary transmission mechanism—making domestic policy outcomes more dependent on the actions of foreign policymakers.

- b) On the trade-off between inflation and real economic activity confronted by policymakers—affecting the slope of the open-economy Phillips curve and that of the dynamic open-economy Investment-Savings (IS) curve.
- c) On the attainable policy frontier on macroeconomic volatility—altering the achievable policy trade-off between real GDP growth volatility and inflation volatility also known as the Taylor curve (Bernanke (2004)).

According to theory, globalization's role depends on more than the degree of openness of the economy—the trade elasticity, changes in labor market institutions, the interplay between monetary policy and fiscal policy, etc., must be considered as well. Thus, much more work is still needed to understand the effects of globalization in general and its impact on the conduct and international transmission of monetary policy in particular.

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About the author

Enrique Martínez-García is senior research economist and policy advisor in the Research Department at the Federal Reserve Bank of Dallas. In this capacity, he has given numerous briefings on the global economy to the Bank's president, board of directors, and across the Federal Reserve System and at the Federal Open Market Committee (FOMC). Martínez-García conducts research in international macroeconomics and finance and in monetary economics. He has published more than 40 articles on monetary policy, globalization, inflation and exchange rate dynamics, and asset pricing and housing in scholarly peer-reviewed journals and Federal Reserve Bank publications. Much of his research analyzes how global factors have altered economic relationships relevant to understanding the macroeconomy and for the conduct of monetary policy. Martínez-García also spent time at the Bank of England and at the University of Wisconsin–Madison's Center for World Affairs and the Global Economy (WAGE) prior to joining the Federal Reserve Bank of Dallas in July 2007. He has taught in the Economics Department at Southern Methodist University and at the University of Texas at Austin. Moreover, Martínez-García currently serves as co-director of the International Housing Observatory and lead researcher for the International House Price Database (IHPD) and the Database of Global Economic Indicators (DGEI) of the Federal Reserve Bank of Dallas partnering with economists and practitioners from the world over to gather information on emerging trends and policy-relevant issues. Martínez-García holds a PhD in economics from the University of Wisconsin–Madison, an MA in economics from the University of Pennsylvania, and a BA in economics from the University of Alicante in Spain.

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SUERF Secretariat
c/o OeNB
Otto-Wagner-Platz 3
A-1090 Vienna, Austria
Phone: +43-1-40420-7206
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