Overview Panel

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Abstract

"Monetary Policy Challenges and the No Free Lunch in Government Debt"

- Monetary divergence challenges independent monetary policy for state-owned enterprises (SOEs). These challenges are here to stay.

- Data dependency is a challenge for conducting and communicating monetary policy, especially for SOEs, who also have to take into account the policy rules of others.

- The sensitivity of the stock market reaction to macro news announcements is countercyclical, and depends on the expectations regarding monetary policy.

- In interpreting market data, central bankers should account for the cyclical position of the economy, and attempt to disentangle the feedback between economic expectations and market projections about the central bank's behavior.

- Increasing the supply of safe assets (via government bonds) can reduce liquidity premia, but raises corporate risk premia, and this trade-off may not be favorable, especially for SOEs.

- There are risks embedded in safe assets, and increasing their quantity in the form of increased debt is not likely to come without fiscal costs.

I'd like to thank the organizers of the Jackson Hole symposium for an excellent conference. As usual, the conference raises many relevant issues and interesting perspectives. I will try to provide my perspectives on some of the panel topics, present some references to Israel where appropriate, and also talk a bit about the related topics of safe assets and rolling over the debt.

I.   Monetary Divergence and Data Dependency

Let me start by focusing on monetary divergence and its effect on SOEs' monetary policy, stability and the link to "data dependency." The discussion among the profession regarding the challenges created by the divergence in economic developments among the major economies naturally tends to focus on the policy response of the major central banks. However, divergence also presents a challenge for small open economies outside these blocks. This can be particularly true for economies with major trading partners across the major diverging blocks. For example, Israel trades primarily with the United States and Europe. About a quarter of our trade in goods and services is with the United States, and about one-third is with Europe (Chart 1). Naturally, divergent monetary policy, as witnessed in the last few years, had important implications for independent monetary policy. More recently, there seems to be a return toward convergence in the direction of monetary policy. However, the levels of growth, inflation and interest rates are still very different among major economies, and are expected to remain different for a while. So, discussing divergence and its implications is still very valuable. Moreover, while divergence can challenge monetary policy, a convergence situation could be even more difficult for a SOE if it would need to go against the wind to support its domestic cyclical development.

Chart 1
Israel Trades Primarily with the United States and Europe

Goods and Services Imports, 2017   Goods and Services Exports, 2017
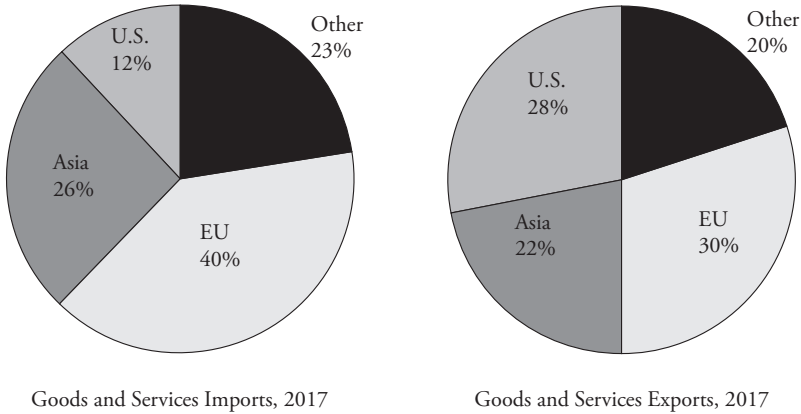
Source: CBS.

The Fed's policy, to gradually but persistently raise interest rates during the last three years, while the European Central Bank and the Bank of Japan retained—even enhanced—their accommodative stance, placed some central banks of SOEs in a dilemma. Should they prevent capital outflows by matching the higher rate of the United States among the major blocks? Should they focus on domestic cyclical developments and allow capital flows to affect the economy through the exchange rate? Or: should they look for some sophisticated averaging of the interest rates (adjusted for the required premia) in the major currency blocks? And possibly consider capital flow and macroprudential measures.
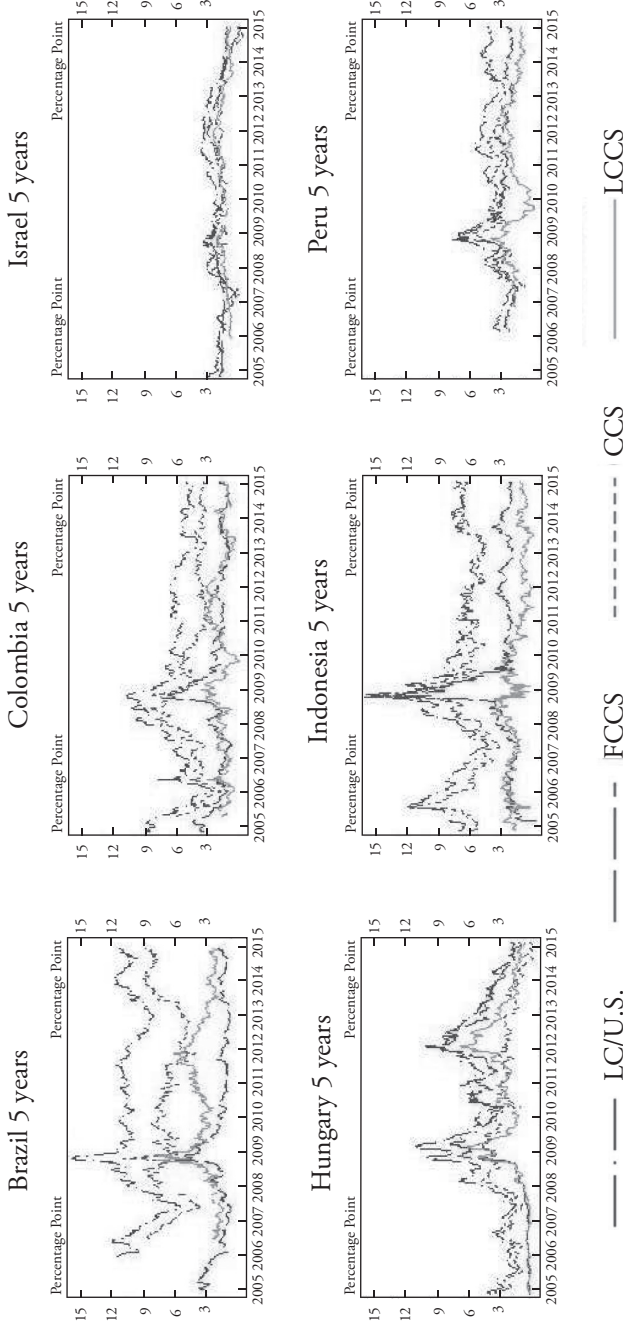
One possible answer for this dilemma is that some SOEs do not really have that many options, as markets may largely dictate the response. These would be countries with vulnerable fiscal or financial positions, especially if they were exposed to dollar-denominated debt, which risk—or experienced—capital outflows and depreciation of their currency. In contrast, those with stronger fundamentals, e.g., lower cyclically adjusted deficits or public debt ratios, were able to navigate the developments more freely and had to choose a course. The policymaker's response cannot always rely on past experience.

In this perspective, Israel is an interesting case study. We are a relatively strong small open economy that is obviously also influenced by external shocks. In Israel, for example, it was perceived during the 1990s and early 2000s that interest rates must be significantly higher than in the United States, otherwise capital outflows would emerge followed by a depreciation and inflation. However, in this round, and in spite of having kept rates very low, Israel faced capital inflows following the U.S. rate hikes, as it was perceived as an "emerging markets safe haven," and appreciation pressures emerged—a marked change from past patterns. This corresponds with the risk perspective that Şebnem Kalemli-Özcan presented here earlier, as a spillover of the U.S. monetary policy, and with Governor Carney's speech emphasizing the importance of the sources of shocks to emerging market economies (EMEs). This shift, which was only partially offset by a sustained accommodative monetary policy, reflects the structural change in the fundamentals of the Israeli economy, including the continuous expansion of employment; the current account surpluses; the decline in the debt-to-GDP ratio since the Fiscal Stabilization program in 2003.

The strong fundamentals of Israel's economy manifest themselves in financial markets, and are intimately related to the perceived absolute and relative resilience of the economy. Chart 2 is taken from Du and Schreger's (2016) paper on "Local Currency Sovereign Risk," which introduces a new measure of emerging market sovereign credit risk, and compares the development of sovereign risk in a few emerging markets between 2005 and 2014. It shows that Israel's sovereign credit risk is low, with exceptionally low variance compared to the other countries—emphasizing the "safe haven" status within emerging and even advanced economies.

A challenge for the policymakers in markets like Israel is to deal with divergence of policies in the major blocks. A paper by Brender and Ribon (2015) from the Bank of Israel (BOI), and a follow-up analysis by Shalom (2019), also from the BOI, highlights how this divergence complicates policymakers' work. Until the global financial crisis (GFC), yields in the United States and Europe were highly correlated, so there was no need, or ability, to distinguish between

Chart 2
Emerging Market Sovereign Credit Risk: Israel's Sovereign Credit Risk Is Low, with Exceptionally Low Variance Compared with Other Countries

Brazil 5 years

Colombia 5 years

Israel 5 years

Hungary 5 years

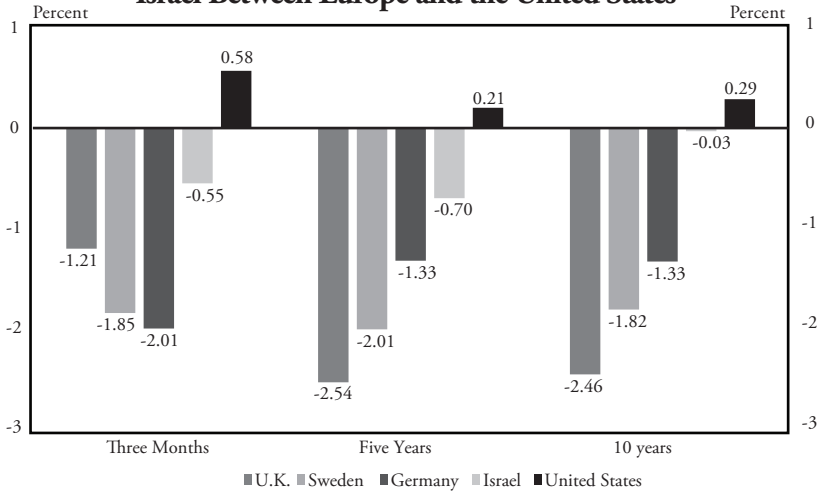Indonesia 5 years

Peru 5 years

LC/U.S. — FCCS — CCS — LCCS

Notes: Five-year nominal spreads, CCS, and credit spreads (percentage points). Each figure plots 10-day moving averages of zero-coupon LC and FC spreads over the U.S. Treasury at five years. LC/US denotes the LC nominal yield over the five-year U.S. Treasury bond. FCCS denotes the FC credit spread. CCS denotes the fixed-for-fixed LC/dollar cross-currency swap rate. LCCS denotes the LC credit spread.
Source: Du, Wenxin and Jesse Schreger. "Local Currency Sovereign Risk," *The Journal of Finance* 71.3 (2016): 1027-1070.

their effects on Israeli government bond yields. For simplicity, policymakers tended to, and could, focus primarily on U.S. yields. In contrast, since the GFC, it appears that the Israeli yields have become strongly correlated with the European ones, with hardly any correlation with U.S. yields, despite the similar trade magnitudes with the two blocks and the resemblance of Israel's growth and unemployment rates with the United States. While the covariation of rates in recent times seems to be with the eurozone, the levels indicate an even more complicated divergence story. Chart 3 shows the term structure of real rates. One can immediately observe how Israel is caught in between: For short maturities Israel is closer to the European block, while longer maturities, namely the 10-year rate, is closer to the United States.

The discussion on independent monetary policy has aspects that are reminiscent of Hélène Rey's "Dilemma not Trilemma whereby independent monetary policies are possible if and only if the capital account is managed." Given that monetary policies are transmitted globally through the financial markets, and that capital controls can have many facets, it remains a question how effective they might be in a divergence situation. Taken together, these considerations clearly demonstrate the challenges that divergence can impose on independent monetary policy for SOEs. I believe that this "new normal" would persist in the coming years.

One more aspect that connects data dependency and divergence is assessing whether incoming data are pointing toward a typical change in economic conditions that ultimately will have to cointegrate with fundamentals and other large economies, or towards a lower frequency process underlying a permanent structural change. A simple example is given in Chart 4, which shows how between 2009 and 2013 Israel's inflation rate was higher than in other OECD countries, yet subsequently the picture turned around and by 2017 the cumulative price increase since 2009 was similar. Such developments make real-time assessments of whether policymakers are faced with transitory divergence or structural economic changes a challenge. More generally, while there is a wish to not be behind the curve, the uncertainty and ambiguity suggest a call for greater patience and risk aversion.

Chart 3
Term Structure of Real Rates:
Israel Between Europe and the United States

Percent   Percent

Values by category:

	Three Months	Five Years	10 years
U.K.	-1.21	-2.54	-2.46
Sweden	-1.85	-2.01	-1.82
Germany	-2.01	-1.33	-1.33
Israel	-0.55	-0.70	-0.03
United States	0.58	0.21	0.29

■U.K. ■Sweden ■Germany ■Israel ■United States

Note: Updated to July 15, 2019.
Sources: Bloomberg and BoI.

Chart 4
CPI in Israel and the OECD

June 2019 = 100   June 2019 = 100

A ±25 % range from OECD

Median   —— OECD Median   —— Israel
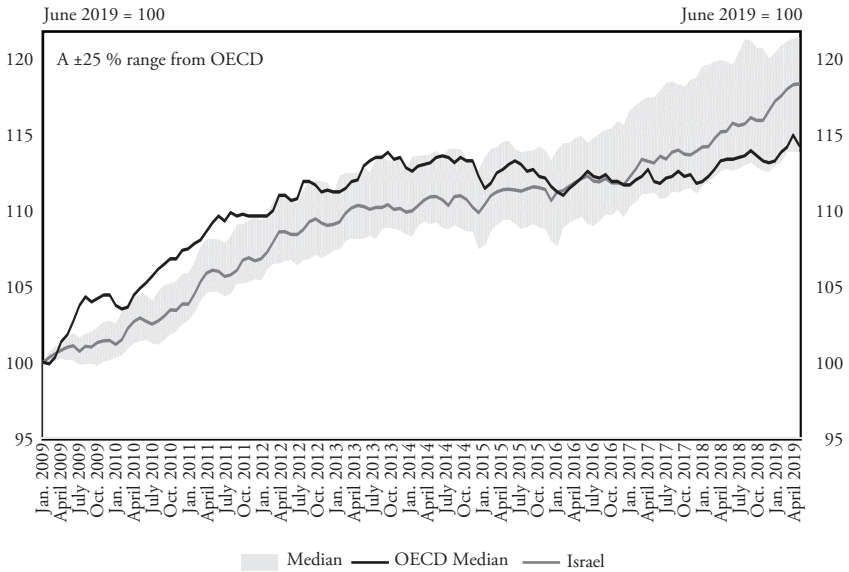
Sources: OECD and CBS.

It is this fine line that central bankers face when transforming data analysis into policy. It highlights the difficulty of balancing data dependency with a clear policy rule and its communication, especially for SOEs who also have to take into account the policy rules of others.

II.   Monetary Policy and Financial Markets

There has been an extended discussion here about monetary policy and financial markets. The interaction of the two affects forecasting, policy and its potential effectiveness. I want to connect these two issues. My argument is that the effects of monetary policy on financial markets are state dependent, and importantly depend on the phase of the business cycle. Here, I rely on some work of mine together with Tzuo Law and Dongho Song. I'll just emphasize that the title of the paper—"Fearing the Fed: How Wall Street Reads Main Street" (2016)—was given long before I ever imagined I would become a governor of a central bank.

Using S&P 500 futures returns, it is shown that the sensitivity of the stock market reaction to macro (not Fed) news announcements (MNAs) is significantly countercyclical and depends on monetary policy. The evidence suggests that the sensitivity of stock returns to MNAs can increase by a factor greater than two coming out of recessions, and remains above average for about one to two years (Chart 5). The peak sensitivity is obtained when the economy is furthest below trend at the very end of a recession and the beginning of an expansion. The reaction of stock returns gradually attenuates as the economy expands, with stock prices reacting insignificantly to MNA surprises when the economy is above trend.

Although we specifically examined MNAs that are not by the Fed, we argue that expectations about monetary policy stabilization are at the heart of this phenomenon. The paper provides empirical evidence supporting this by connecting the cyclical stock response coefficients to business cycle and monetary policy. Using survey measures relative to their current values to determine the expected direction of the next quarter's interest rate and unemployment, we find a relatively small response during periods in which the economy is above its potential trend with tightening expectations. On the other end of

Chart 5
Time-Varying Sensitivity Coefficient for Stock Returns
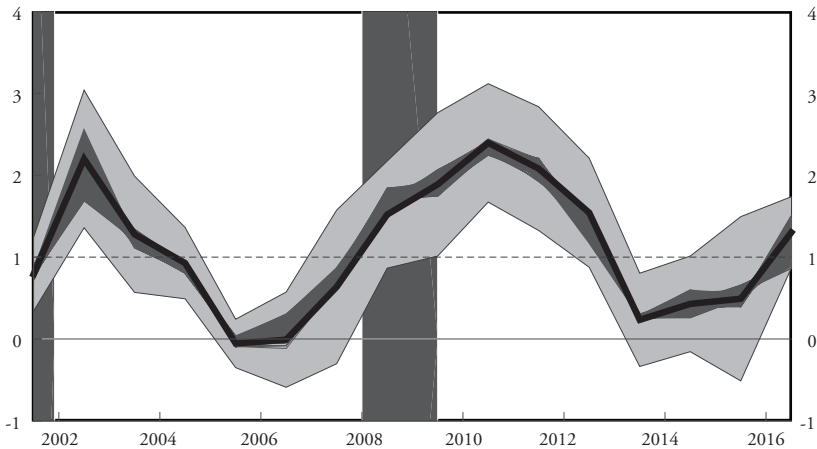
Notes: The top four MNAs from Table 1 of Law, Song and Yaron (2016) are Change in Nonfarm Payrolls, Consumer Confidence Index, Initial Jobless Claims and ISM Manufacturing. We impose that β_τ (black-solid line) is on average equal to one. We set $\Delta = 30$min. We provide ±2-standard-error bands (light-shaded area) around β_τ. The shape is robust to all possible combinations (dark-shaded lines) of the next eight MNAs listed in Table 1. Source: Williams (2014)

the spectrum, we find a much greater response of the stock market to news when the economy is significantly below its potential trend, and there is an expectation for an easing monetary policy. More specifically, in periods above trend, risk premia is relatively low, cash flows news (embedded in the announcements) are broadly offset by stabilization expectations, and consequently, the reaction of the stock returns is relatively muted. In contrast, during periods far below potential, risk premia are heightened creating a wedge between the offsetting cash flow and interest rates news leading to a significant reaction by the stock market. This reflects among others the fact that central banks and in particular the Fed control not just the short rate but also influence risk premia.

Taken together, this evidence strongly suggests that expectations about the phase of the business cycle and future interest rates are key determinants of the cyclicality of the sensitivity of the stock market's response. Accordingly, an important lesson is that interpreting market data as an input for monetary policy should account for the cyclical position of the economy, and attempt to disentangle the feedback between economic expectations and market projections about the central bank's behavior.

III.   Safe Assets, Government Debt and (No) Free Lunches

The last panel of the conference discussed financial markets and safe assets. There is a growing literature on the importance of the availability of safe assets in reducing the liquidity premium, providing a safety premium, particularly during times of economic and financial stress (e.g., Krishnamurthy and Vissing-Jorgenson 2012). The prevailing argument is that larger debt-to-GDP ratios correspond to lower convenience yields reflecting something akin to a money supply for safe assets. Furthermore, and related, there have recently been discussions of the opportunities afforded by the low interest rate environment for expanding the supply of safe assets, namely government debt (e.g., Blanchard 2019). I want to argue that the virtue of safe assets is probably more nuanced. It is affected by the state of the economy as well as the form of supply. There is probably no free lunch even in this manner.

In Chart 6, which is from a recent paper with Yang Liu and Lukas Schmid (2019), it is shown that while a larger debt-to-GDP ratio seems to lower liquidity spreads, it tends to be associated with larger corporate spreads. You can see (in the northwest subplot of the chart), that corporate bond spreads have a positive impulse response to a shock to debt to GDP while there is a decline in the Repo-T-Bill spread representing more of a liquidity spread (in the southwest subplot). The southeast subplot in this chart shows that the quantity of corporate debt issuances also seems to decline in response to positive innovations to debt to GDP. These are the empirical facts.

The channel that the paper uses to explain this is that government debt has to be paid through an uncertain path of distortionary taxes. The risk premium associated with such financing is manifested in larger and riskier corporate spreads, and counteracts the benefits of lowering the liquidity premium. Chart 7 shows the output from the model, which contains liquidity shocks in the financial markets, firms with risky fairly priced debt, and government that services its actions via debt and taxes. The figure demonstrates the improvements in the liquidity premia in response to a rise in debt to GDP, with the corresponding increase in corporate spreads. As alluded to in the panel, countries will likely differ in how much they will benefit from an

Chart 6
Larger Debt-to-GDP Ratio Lowers Liquidity Spreads but Tends To Be Associated with Larger Corporate Spreads
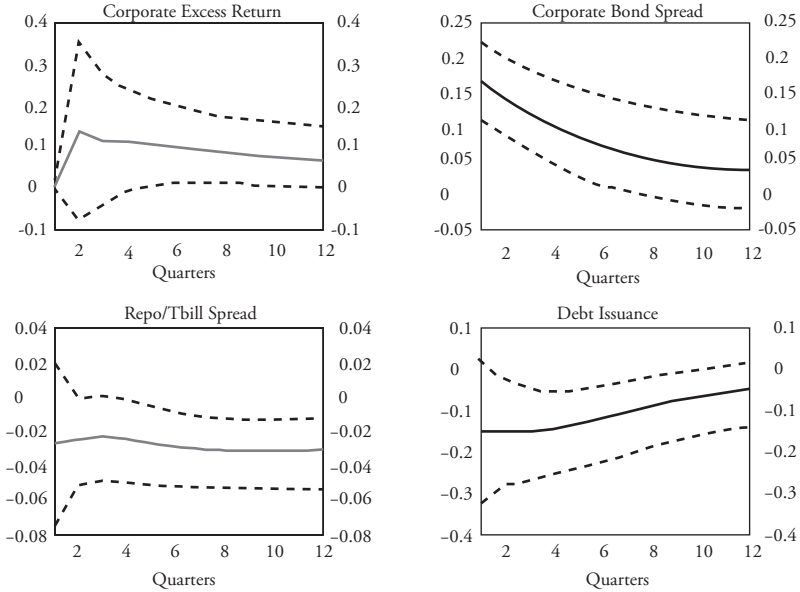
Notes: The chart plots the impulse response functions to a 1-standard deviation shock to debt-to-GDP ratio based on our estimated VAR. The VAR includes fed funds rate, real GDP growth, stock realized volatility, corporate bond excess return, debt-to-GDP ratio, corporate bond spread in Gilchrist and Zakrajsek (2012), the repo Treasury bill rate spread and the net increases of corporate bond. The sample period is from 1973Q1 to 2014Q12.
Source: Yang Liu, Lukas Schmid and Amir Yaron, 2019, "The Risks in Safe Assets," Fuqua School of Business, working paper.

Chart 7
Larger Debt to GDP Seems To Lower Liquidity Spreads but Tends To Be Associated With Larger Corporate Spreads
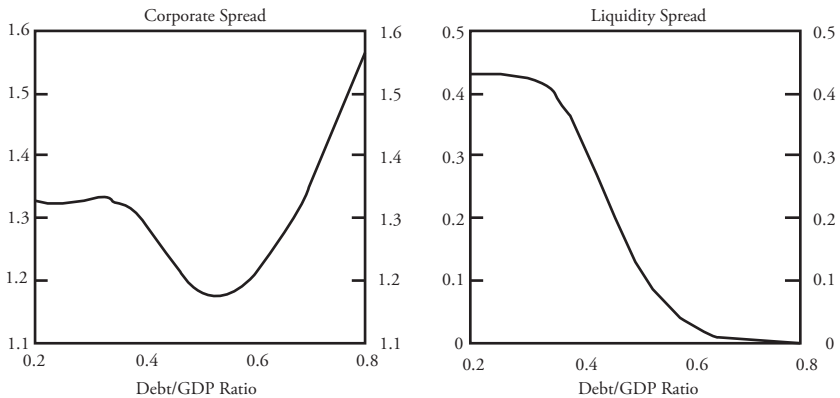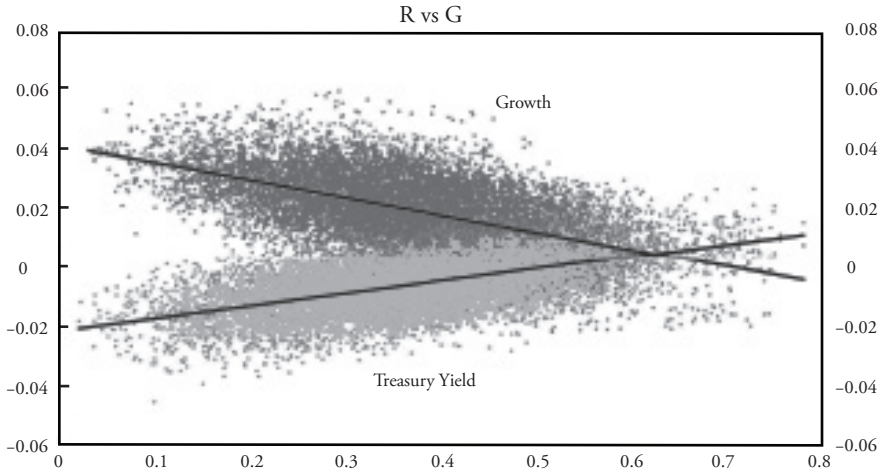

Source: Yang Liu, Lukas Schmid and Amir Yaron, 2019, "The Risks in Safe Assets," Fuqua School of Business, working paper.

improved safety and liquidity premia relative to increased riskiness via the corporate spread component. The data here reflect the United States, which is unique, and the relative safeness of the dollar might contribute to its convenience yield as documented in Krishnamurthy and Lustig (2019). Therefore, the trade-off between increased corporate premia and reduced liquidity premia is likely to be much less favorable in small, less developed, open economies. That is, beyond fiscal consolidation, sovereign default and inflation are two additional risk factors that cannot be ignored in many small countries. Moreover, there is an inherent asymmetry—the reduced liquidity premium has an obvious downside floor while in principle the increased risk premia do not.

These trade-offs also have something to say about the recent discussions of the viability of increasing or rolling over debt without fiscal costs. Interestingly, Chart 8 shows that beyond a certain debt-to-GDP level (which for example, in the model, surprisingly came out to be 60%), R (real interest rate) is greater than G (growth rate), a critical aspect for arguing that increasing the debt can be costless. This comes from the fact that both the equilibrium real rate and the growth rate adjust endogenously and differentially to the debt-to-GDP. Beyond the model, it is important to recall that financial markets are forward looking and might be telling us something about future growth. Thus, in a stochastic environment, when assessing whether R is greater than G, it is important to compare the current rate to forward-looking growth. Chart 9 shows the 10-year bond rate and the subsequent realized 10 year growth (as a proxy to what should have been the expected growth). One can see that after Bretton Woods, the rate is almost always greater than the relevant corresponding growth. Although in certain short-term circumstances the cyclical benefits may justify the costs, taken together, this discussion suggests there are risks embedded in safe assets, and that increasing their quantity in the form of increased debt questions whether it can be done without fiscal costs.

Chart 8
Beyond Certain Level of Debt to GDP (60%), R Is Greater than G Implying Increased Debt May Not Be Costless

Source: Yang Liu, Lukas Schmid and Amir Yaron, 2019, "The Risks in Safe Assets," Fuqua School of Business, working paper.

Chart 9
Nominal Yield to Maturity on Government Bonds and Average Nominal GDP Growth in the Following 10 Years
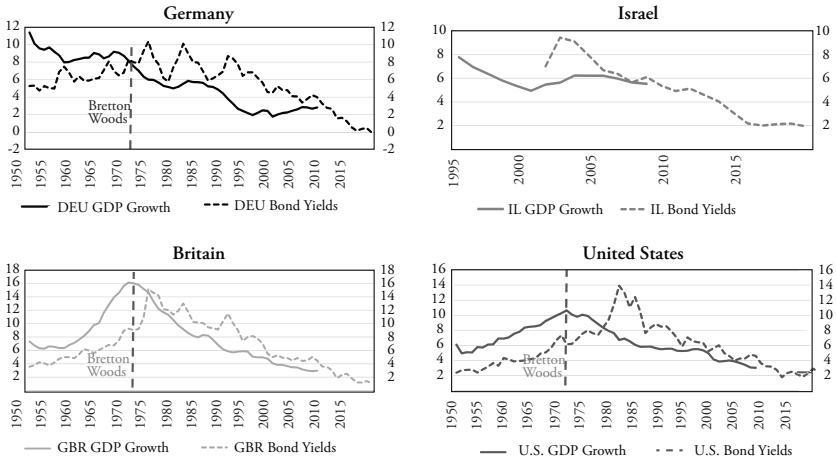
Sources: Israeli CBS, Bank of Israel and Macrofinance & Macrohistory Lab.

References

Blanchard, Olivier. 2019. "Public Debt and Low Interest Rates," *American Economic Review*, vol. 109, 4, 1197-1229.

Brender, Adi, and Sigal Ribon. 2015. "The Effect of Fiscal and Monetary Policies and the Global Economy on Real Yields of Israel Government Bonds," Bank of Israel Working Papers 2015.02.

Du, Wenxin, and Jesse Schreger. 2016. "Local Currency Sovereign Risk," *The Journal of Finance*, 1.3: 1027-1070.

Kalemli-Özcan, Şebnem. 2019 "U.S. Monetary Policy and International Risk Spillovers," in *Challenges for Monetary Policy*, Federal Reserve Bank of Kansas City, Jackson Hole Economic Policy Symposium, Jackson Hole, Wyoming, Aug. 22-24.

Krishnamurthy, Arvind, and Hanno Lustig. 2019. "Mind the Gap in Sovereign Debt Markets: The U.S. Treasury basis and the Dollar Risk Factor," Stanford Graduate School of Business, working paper.

_____, and Annette Vissing-Jorgensen. 2012. "The Aggregate Demand for Treasury Debt," *Journal of Political Economy*, vol. 120, no.2, pp. 233-267.

Law, Tzuo, Dongho Song and Amir Yaron. 2016. "Fearing the Fed: How Wall Street Reads Main Street," The Wharton School, working paper, revised 2019.

Liu, Yang, Lukas Schmid and Amir Yaron. 2019. "The Risks in Safe Assets," Fuqua School of Business, working paper.

Rey, Hélène, 2018, "Dilemma not Trilemma: The Global Financial Cycle and Monetary Policy Independence," NBER Working Paper No. 21162.

Shalom, Gilad. 2019. "The Impact of Yields Abroad and the Public Debt on Real Yields of Israeli Government Bonds: A Reexamination," Bank of Israel, Selected Research and Policy Analysis Notes, February.