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ARE WE AGAIN TAKING FINANCIAL STABILITY FOR GRANTED?
(OR: DO WE NEED CENTRAL BANKS?)

ADDRESS TO THE ISRAEL ECONOMIC ASSOCIATION CONFERENCE

BY AMIR YARON, GOVERNOR OF THE BANK OF ISRAEL

- Volatility in consumption and income may, under certain circumstances, have a significant negative impact on well-being, such that central banks' stabilizing policies may be very valuable. Volatility may have an impact on the path of growth, such that stabilizing policies also have an impact on growth.
- There is "bad" uncertainty, which must be guarded against, but there is also "good" uncertainty, which is reflected in innovation and technological improvements, research and development, and competition. We must maintain stability while enabling that good uncertainty.
- Stabilizing policy is particularly important to prevent financial crises, since the damage from such crises is significant. Therefore, the financial stability committee becomes a vital layer in the early identification of risks. The establishment of the committee is a very important step in view of the financial system reforms that are being formulated.
- The Bank of Israel advises the government on how to increase long-term growth, and indicates main policy measures in the areas of education, infrastructure, and bureaucracy that can increase the long-term growth path. The Bank is currently working diligently on a formal report containing the Bank's recommendations to the government regarding the advancement of productivity in the economy and an analysis of their expected costs and benefits in the long term.

This discussion combines economic theory, policy measures, and the current public discourse in Israel, a decade after the Global Financial Crisis.

This question is based on a model by a very famous economist, and his insights can lead us to the conclusion that the value of stabilizing policy, mainly by the central banks, is not great. However, there is also a wide range economic literature, as well as insights that are specific to Israel, that prove otherwise. These insights have become clearer to me in recent months, since I took on the position of Bank of Israel Governor and saw how the Bank of Israel's measures, in their various forms, have contributed to the economy's growth and its resilience to shocks.

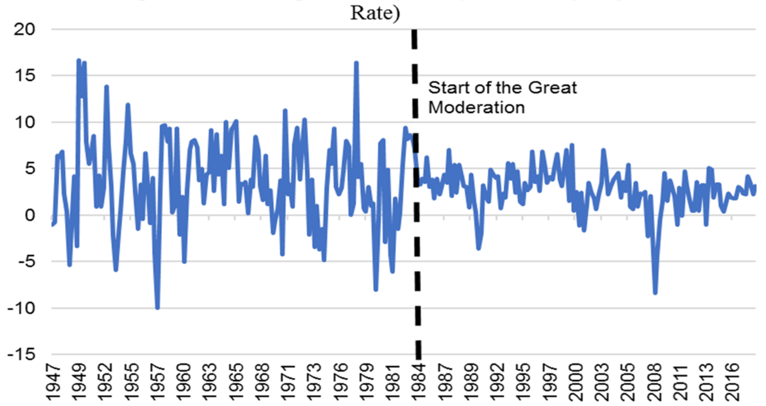
First, let us mention the Bank of Israel's objectives, according to the Law:

- To maintain price stability, as its central goal;
- To support other objectives of the government's economic policy, especially growth, employment and reducing social gaps;
- To support the stability and orderly activity of the financial system.

It is common in the economic literature to assume that one of the central bank's roles is to moderate the volatility of the business cycle, since the widespread assumption is that this volatility is undesirable among consumers and firms. In fact, since the mid-1980s, there has been a decline in the volatility of business cycles in the advanced economies, which has been reflected in GDP, production, employment, and more (Figure 1). The success in reducing the volatility is mostly attributed to the policies of the central banks, which, thanks to their independence, can act in the interest of macroeconomic stability.

As such, it is worth examining whether the effort to stabilize economic activity, which has in fact borne fruit in recent decades, is actually important and worthwhile.

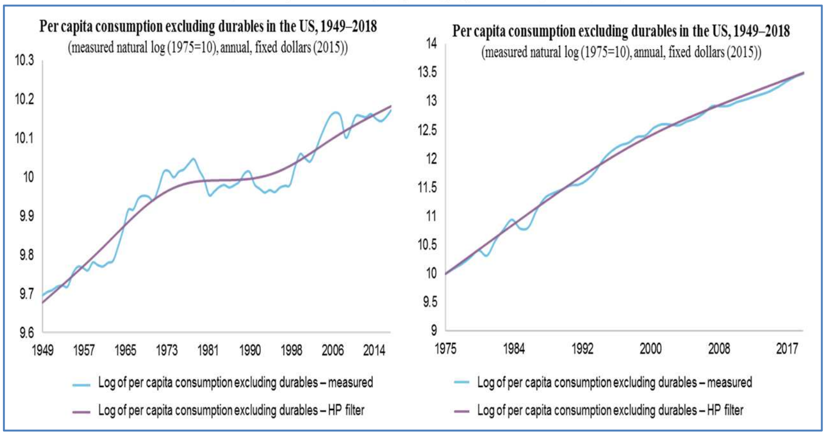
Figure 1
US Real Gross Domestic Product, 1947–2019
(Percent Change from Preceding Period, Quarterly, Seasonally Adjusted Annual Rate)



The economist Robert Lucas examined this question in 1987 by estimating the negative impact to well-being that results from volatility in consumption, assuming that potential consumption increases at a fixed rate while actual consumption is volatile (Figure 2).

Figure 2

$$C_t^* = \mu^t C_0^* \qquad C_t = (1+\varepsilon_t)C_t^* \qquad \varepsilon_t \sim Niid(0,\sigma^2)$$



SOURCE: Bureau of Economic Analysis, Bureau of Labor Statistics, Central Bureau of Statistics.

Lucas's model shows that the consumption value that individuals will agree to pay for completely cancelling volatility—for convenience, let's call it the "nonvolatile consumption premium"—is near zero. He assumes the following benefit function:

$$U(C_t) = E_0\left[\sum_{t=0}^{\infty} \beta^t \frac{C_t^{1-\gamma} - 1}{1-\gamma}\right]$$

where C_t is the individual's consumption in period t, β is the capitalization coefficient, and γ is a risk aversion coefficient. (In the following calculations, I will assume that γ=1.)

The model shows that the nonvolatile consumption premium is $\lambda = \frac{1}{2}\gamma\sigma^2$.

In US data for the years 1949–2018, σ = 0.027, so λ = 1/2(1)(0.027)^2 ≈ 0.0004.
For Israel, between 1975 and 2018, σ = 0.026, so λ = 1/2(1)(0.026)^2 ≈ 0.0003.

This means that the value to the consumer of smoothing consumption is negligible, and we can theoretically conclude that there is no tremendous value in a stabilizing policy. This leads to a similar potential interpretation regarding the importance of the central banks. Is this really true? Where does the gap between the intuitive notion that volatility should be moderated and Lucas's conclusion come from? The answer has to do with three components that are not reflected in Lucas's paper:

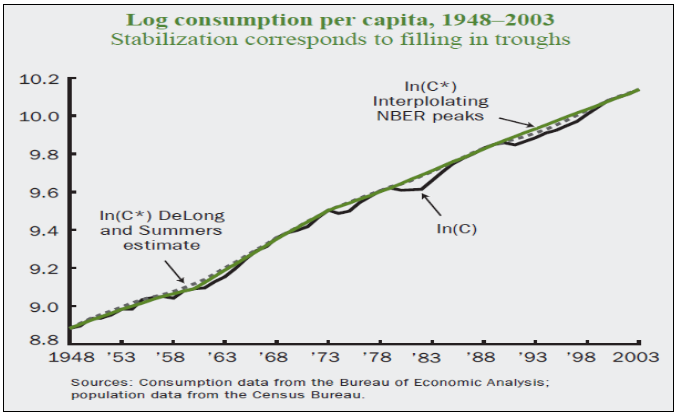
1. The single individual is exposed to greater risks than the average individual is.
2. The path of growth on its own is subject to volatility and uncertainty.
3. The significant impact of financial cycles on the business cycles.

For now, I will expand a little on each of them.

A more correct assumption for the model, which is closer to the economic reality, is that **the single individual is exposed to greater risks than the average individual is.** Therefore, when the distribution of risk among individuals is not uniform, aggregate data do not necessarily provide the complete picture. A more simplistic description of this assumption is used a lot in describing the statistical average, ignoring variance and volatility: "You can also drown in a pool with an average depth of 20 cm." So when examining the change in the effect of volatility on different population groups in different situations, the nonvolatile consumption premium that Lucas thought was negligible becomes positive in the model and significant in "real life". For instance, during a recession, most of the public that continues to work and receive wages feels the recession only on the margins, while workers who have been laid off take a serious hit. From this point of view, a reduction in volatility would have led to a very large advantage.

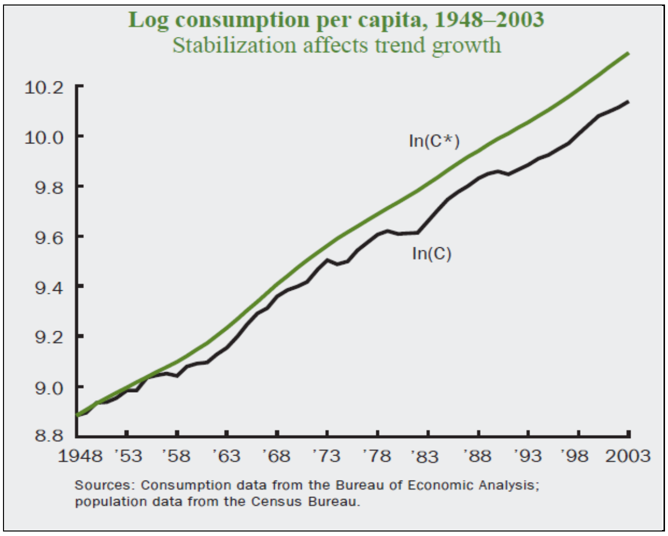
Another parameter that needs to be taken into account is that, as opposed to Lucas's assumption, **the path of growth actually is subject to volatility and uncertainty.** Economists who took this into account in their models, such as Obstfeld (1994), and Dolmes (1998) actually found that the effect of shocks is prolonged. As such, if the shocks affect consumption over time, and are not limited to short-term volatility of consumption, then the value of stability—the nonvolatile consumption premium—is high. Those shocks that we mentioned have an effect that is not uniform. Positive business cycles accelerate the economy, while negative business cycles moderate it asymmetrically, so that the volatility itself has a negative impact on the path of growth. A study by Yellin and Ackerlof (2004) shows that unemployment responds asymmetrically to changes in inflation, such that a stabilizing policy may increase GDP by 0.5–0.8 percent per year on average. One of the studies that helps to explain this positive outcome was done by DeLong and Summers (1988), in which they show that a stabilizing policy can have a medium-term impact because it is not necessarily symmetrical, and hence its importance (Figure 3). The troughs can be smoothed without "shaving" the peak periods in the business cycles.

Figure 3



Another way of examining the cost of volatility, or alternatively the value of stability, is to examine investment in the economy, which has a large effect on GDP and on consumption. Uncertainty affects production decisions, when firms must make decisions in advance regarding the technology that they will use and the means of production they will employ. Firms may therefore inefficiently allocate their resources. Ramey and Ramey (1991) also found a statistically significant value to the nonvolatile consumption premium. In addition, Barlevy (2005) found that an increase in investment during peak periods contributes less to growth than the negative impact to growth from a reduction in investment during a recession (Figure 4). Therefore, a stabilizing policy is not limited to smoothing consumption volatility, but contributes to the growth rate and to improving per capita consumption. It is important to note that there is "bad" uncertainty, regarding which we must guard stability, but there is also "good" uncertainty, as shown by a study I conducted with Segal and Shaliastovich (2015). We must maintain stability while enabling that good uncertainty that is reflected in innovation and technological improvements, research and development, and competition.

Figure 4



Until now, the discussion has been regarding volatile business cycles.

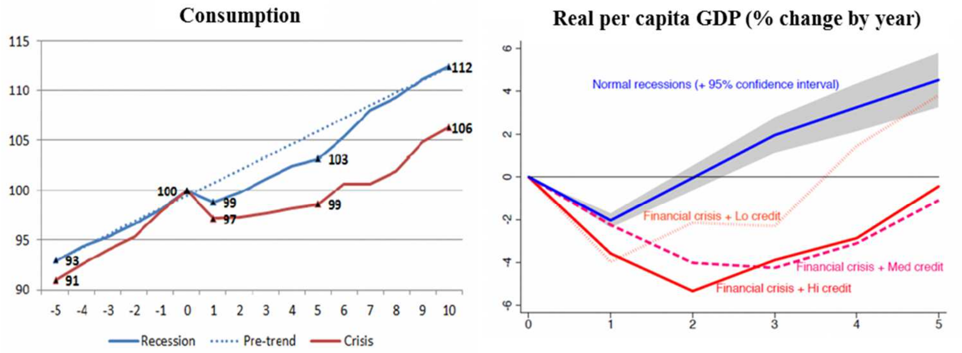
But what about the significant effect of financial cycles on that volatility?

"Financial cycle" is a term that is described and analyzed in the Bank of Israel's Financial Stability Report for the first half of 2019. It is a method of identifying cyclical behavior of financial activity. The financial cycle is defined as "deviations from the long-term trend of a group of variables that are important to financial stability". The definition first requires us to choose the relevant variables, and then to choose the method of identifying deviations in the trend. In accordance with the literature, the Bank of Israel examined a number of estimations for identifying the financial cycle, including private credit, home prices, share prices, and the slope of the real yield curve. Except for private credit and home prices, the rest of the estimations that were examined were found to vary at different (high) rates, and therefore do not contribute to identifying the financial cycle.

We can see that recessions accompanied by a downturn in the financial cycle (movement from a high point to a low point) are the deepest and most serious (Figures 5 and 6). This finding significantly increases the nonvolatile consumption premium, as shown in a study I conducted with Bansal and Kiku (2010). The examination in the Bank of Israel's Financial Stability Report for the first half of 2019 tested the effect of the intensity of the financial cycle on periods of slowdown in Israel. It showed that during downturns in the financial cycle, there was a significant negative impact to the real cycle (-3.3 percent at the beginning of the 2000s, compared with 0.2 percent in the mid-1990s and -2.0 percent during the Global Financial Crisis, when the financial cycle in Israel was in an upward path).

One of the issues raised by such an analysis is the question of the need for setting anti-cyclical capital buffers: a demand that the banks hold higher levels of capital during boom periods, which can be decreased during economic downturns, thereby releasing the credit supply constraint during such periods. The use of anti-cyclical capital buffers obviously requires precise identification of the financial cycle. A number of countries, such as the UK, the Czech Republic, Hong Kong, and the Scandinavian countries, are already implementing anti-cyclical policy in setting capital buffers, in accordance with the Basel 3 guidelines.

Figure 5

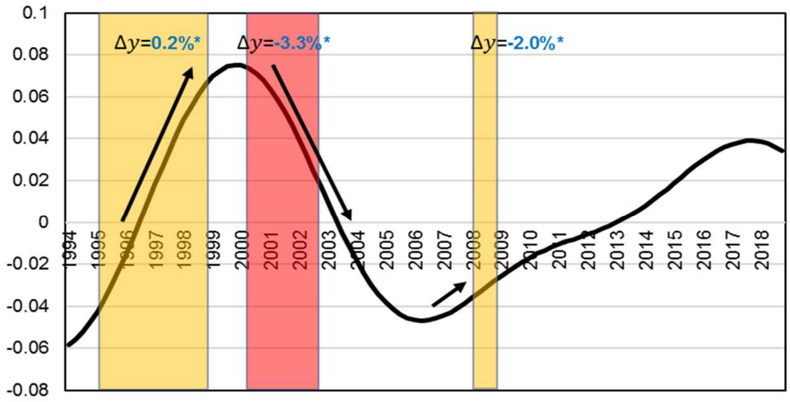


SOURCE: Savov (2014), based on Barro-Ursua (2008), using information on real per capita consumption for 22 countries from the Maddison Historical Statistics Project. The dataset contains data from prior to 1914 (in some cases since 1870) up to 2006.

SOURCE: Jorda Shularick Taylor (2011). The sample contains information on 14 advanced economies between 1870 and 2008, including 208 recessions, 173 of which are classified as normal, and 35 as financial.

Figure 6

The Financial Cycle* (log, in real terms, normalized to 2001:Q1)



* The financial cycle is defined as deviations from the long-term trend of a group of variables that are important for financial stability.

Δy= Rate of change of per capita GDP (annual terms).

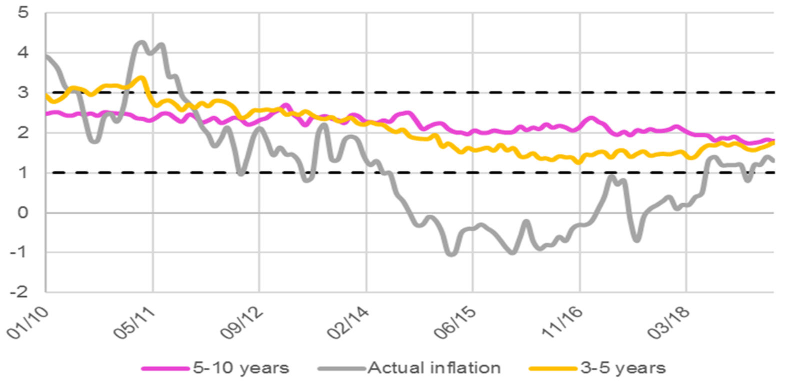
SOURCE: Bank of Israel calculations.

As such, we can say that volatility in consumption and in income may, in some circumstances, have a significant negative impact on well-being, such that a stabilizing policy on the part of the central banks can have tremendous value. The path of growth on its own may be affected by volatility, such that a stabilizing policy also affects growth. Moreover, it is well known that financial crises affect the economy in a nonlinear way, since they imply a lack of available funds to firms that are in the process of creation or critical growth. Consequently, once a financial crisis arises, many firms fall into negative dynamics that may lead to closure. Stabilizing policy is therefore particularly important in helping to avoid substantial costs to the economy.

How does the Bank of Israel, in practical terms, implement the insights from these analyses and studies in order to contribute to the stability, prosperity and growth of the Israeli economy?

First we examine long-term price stability, which influences many of the decisions previously discussed. We can see that long-term inflation expectations are anchored around the midpoint of the target range, meaning that the Bank's policy is credible and market participants benefit from certainty regarding long-term inflation (Figure 7). The monetary policy that enabled this outcome was accompanied by macroprudential measures taken by the Bank, which succeeded in preventing overleveraging despite the low interest rates, thereby protecting financial stability with a long-term systemic view, and enabling monetary policy to focus on achieving its main objectives. At the same time, the Bank of Israel worked to strengthen the capital buffers in the banking system in order to increase its resilience to crises, and increased the foreign exchange reserves to around 30 percent of GDP in order to strengthen the economy's financial safety buffer.

Figure 7
Inflation Expectations to Various Terms, and Actual Inflation, 2010–19
(monthly, percent)



Notwithstanding these actions, there is room for advancing further measures, partly because the credit market is becoming more varied and requires a more integrated regulatory view. The volume of credit issued by nonbank entities has been expanding in recent years, partly due to the reforms in this market. Regulation of nonbank financial entities, particularly over the granting of consumer credit, is not the same as regulation over the banks. While the difference between the entities in the type of activity justifies certain differences in regulation, it is important to make sure that these differences don't develop into regulatory arbitrage that could under certain circumstances create a systemic risk. This makes the Financial Stability Committee, which convened for the first time in April 2019, increasingly important, as it provides an important element in reducing regulatory arbitrage and in the early identification of risks. The establishment of the committee is a very important step in view of the reforms taking place in the financial system. The multiplicity of participants in the credit market, and the division of responsibility between the various regulators, require a view of the entire system and close coordination between the regulators.

If we have so far discussed the Bank of Israel's contribution to reducing volatility, I would like to mention that there are some connections between volatility and growth. This brings up another area under the Bank of Israel's responsibility, where, as opposed to most other central banks, the Governor of the Bank of Israel also serves as economic advisor to the government. As such, the Bank advises the government on how it can increase the long-term growth rate. The Research Department indicates main policy measures in the areas of education, infrastructure, and bureaucracy that can increase the long-term growth path. The Bank is currently working diligently on a formal report containing its recommendations to the government regarding the advancement of productivity in the economy, and an analysis of their expected long-term costs and benefits.

In conclusion, it is important to enable and promote innovation and competition, but as I have emphasized throughout this discussion, it is no less important to avoid taking stability for granted. There is tremendous value to overall well-being from a policy that stabilizes volatility and uncertainty in the short term, the medium term, and the long term, and certainly when volatility increases to the point of a financial crisis.

In recent weeks there has been an increase in uncertainty in Israel. While the financial markets have so far not been tremendously agitated by it, we cannot assume that there is no damage. It is clear that this is a challenging period, and that we must deal with it. In order to prevent harm to the economy, all policy makers and public officials must act responsibly and do all that they can to reinstill certainty and fiscal responsibility.