Comments and Discussion

COMMENT BY

ALAN S. BLINDER I have four main points to make about Ricardo Reis's fascinating paper. The first is a point of grammar: The word *anchor* can be a noun or a verb. While Ricardo concentrates on the noun form, I think the verb form is the more interesting and important one. Second, while actual inflation and expected inflation are jointly endogenous variables with each one influencing the other, just as Reis says, the direction in which causation is quantitatively more important matters. Is it mainly expected inflation that drives actual inflation, which comes close to Reis's view? Or is it mainly the actual experience with inflation that moves expected inflation, which comes closer to my own view? Third, readers should realize what a difficult task Reis has set for himself in this paper. I'm tempted to call it an impossible task, but Reis has a track record of making progress on nearly impossible problems—and he does so here. Nonetheless, the extreme difficulty of the task limits how convincing his conclusions can be. In particular, and finally, I take issue with Reis's "bottom line" story of how and when the United States lost its inflation anchor in the 1967–1970 period.

NOUNS AND VERBS When the word *anchor* is used as a noun, it refers to a physical object. That's the metaphor that Reis uses repeatedly: the ship of inflation is either anchored in the seabed or adrift. But when *anchor* is used as a verb, it's about how something—in this case, expected inflation—gets anchored.

Reis concentrates on the noun, specifically on estimating a numerical value for long-run expected inflation. But to me, and I think to macroeconomics in general, the verb "to anchor" is more important. It's about how the central bank is supposed to hold actual and expected inflation at or near whatever target it selects.

Many methods of anchoring inflationary expectations have been proposed and used over the years, dating back at least to the gold standard. Some methods, like the gold standard, rely on a fixed (or almost fixed) exchange rate to anchor expectations. That includes, of course, the Bretton Woods system and various sorts of exchange rate pegs. In recent history, episodes in which the Argentine peso or the Brazilian real were tied to the US dollar come to mind.[1] Each of these pegs worked—until they didn't. The European Monetary Union was also thought of as a way to bring, say, Italian or Spanish inflation rates down to German levels.

Milton Friedman and the monetarists, of course, offered the k-percent rule for money growth as an attractive way to anchor the inflation rate. After all, inflation is always and everywhere a monetary phenomenon, right? Well, apparently not. Almost no one advocates a k-percent rule these days.

In more recent decades, attention has shifted toward inflation targeting, or its first cousin, price-level targeting. In either case, the stated inflation target is supposed to anchor inflationary expectations. Inflation targeting has certainly scored considerable successes, both in the academy and in the real world of central banking. It's a live candidate today.

One open, but not terribly important, question is whether following a Taylor rule for monetary policy is either an operational instruction for implementing a policy of inflation targeting or a different way of anchoring inflationary expectations to the target.

Finally, I'd like to add something I call "earned credibility" to the list. I'm thinking about anchoring episodes like the Bundesbank standard in pre-euro Germany, the Thatcher standard in the United Kingdom, and the Volcker standard in the United States. Market participants understood, or quickly learned, that the Bundesbank or Margaret Thatcher or Paul Volcker would not tolerate much inflation, and that belief anchored expectations. These episodes are, of course, first cousins of Kenneth Rogoff's (1985) conservative central banker.

One reading of Reis's major conclusion about the rise of inflation in the United States in the 1960s and 1970s is that the Bretton Woods system did not effectively discipline the United States and that we never had a Martin standard.

For a system to anchor inflationary expectations effectively, its design must satisfy certain requirements. First, it must be feasible to implement—the

1. See, for example, Spiegel (2002) on Argentina and Gruben and Kiser (1999) on Brazil.

central bank must actually be able to do it. That consideration probably doomed the k-percent rule decades ago.

Second, the mechanism must be effective in pinning down the expected rate of inflation, which was perhaps one major reason why the Federal Reserve abandoned conventional inflation targeting in 2020 in favor of what it calls *flexible average inflation targeting*. The Federal Reserve clearly was not achieving its 2 percent target and became worried that expected inflation was drifting downward.

Third, the system for anchoring expectations should be robust to inflationary shocks, which is certainly one reason to focus on core inflation rather than headline inflation. This problem is plaguing the Federal Reserve and other central banks right now as bottlenecks have driven the inflation rate to heights not seen in decades.

Finally, and perhaps most important, the system chosen to anchor inflationary expectations must be credible: markets, businesses, and households must believe it will work. Credibility in this context comes in two main parts: the central bank must first achieve credibility through its words and then retain credibility by its actions. Volcker did both for the Federal Reserve. Arthur Burns did neither.

These four criteria interact in obvious ways, of course. For example, expectations won't be credible if the method of anchoring is infeasible or doesn't work.

EXPECTATIONAL DOMINANCE As noted already, and as mentioned by Reis, there is two-way causation between actual and expected inflation. But which direction is quantitatively dominant?

Much of modern macroeconomics sees expected inflation as the dominant factor, with actual inflation trundling along passively behind it. For example, the core of many New Keynesian models looks something like this:

$$y_t = E_t y_{t+1} - \sigma\left(i_t - E_t \pi_{t+1} - r_t^n\right) \quad \text{(AD)}$$

$$\pi_t = \beta E_t \pi_{t+1} + \kappa y_t \quad \text{(AS)}$$

Aggregate demand depends on the gap between the natural and actual real interest rates, the latter of which depends on the expected inflation rate. What passes for the aggregate supply curve sees expected inflation driving actual inflation rather than the other way around. Notice that lagged inflation is nowhere to be found. And needless to say, the expectations operator in both equations connotes rational expectations.

A well-known and extremely clever paper by Jonathon Hazell, Juan Herreño, Emi Nakamura, and Jón Steinsson (2020) uses a model like this to derive the following solution for this period's inflation rate:

$$\pi_t = \phi \tilde{u}_t + E_t \pi_{t+\infty} + \omega_t,$$

where $\tilde{u}_t$ is a complicated unemployment variable. The key point to notice here is that the inflation rate expected "at infinity" drives the current inflation rate. Hazell and others (2020) use this equation to explain why it is so hard to move current inflation: long-run inflationary expectations are too well anchored. Notice that this equation implies that a 1 percent increase in π at infinity will move current inflation by 1 percent immediately. Really?

I'll risk being banished from the tribe by suggesting that perhaps this version of the inflationary process, which has become dominant in academia, goes overboard in its view of the (overwhelming) importance of long-run expectations. Objections to the pure rational expectations model are well known and numerous: nominal contracts, inertia, inattention (whether rational or not), and more. These objections are typically ignored in many New Keynesian models. And without rational expectations, you don't get the inflation equation just above.

There is, of course, an alternative hypothesis to rational expectations: that expected inflation normally reacts to, and therefore naturally lags behind, actual inflation. The basic idea here is that the expected inflation rate is less a leader and more a follower: people come to expect higher inflation if and when they actually see higher inflation. If that's the case, the inflation process is likely to be more inertial than in typical New Keynesian models, and pronouncements about future inflation have less leverage over inflationary expectations than the actual behavior of inflation in real time. Adaptive expectations are one well-known example of such an inertial process, but there is nothing sacred about that particular formulation.

Reis's paper concentrates on a different departure from rational expectations: that different types of agents have different expectations. In the pure rational expectations world, this is impossible because all agents have the same information, know how to process it efficiently, and have the same model in their heads (or on their computers). In the real world, by contrast, different expectations are not just possible, they are an obvious reality. Reis cleverly extracts useful information from the differences between the expectations of professionals and those of ordinary people (in the Michigan survey). The complex details of how he does this are in his earlier paper

(Reis 2021), and I won't discuss them here. Suffice it to say that he pulls a pretty interesting rabbit out of a pretty deep hat.

But then Reis strains to squeeze virtually everything into the Procrustean bed of inflationary expectations. (He is, after all, the very model of a modern macroeconomist.) Supply shocks, political manipulation of monetary policy by Nixon and Burns, and the Federal Reserve's judgmental errors are all pushed into this bed. Strange bedfellows, I'd say. Arguing that inflation is always and everywhere an expectational phenomenon is no better than arguing that inflation is always and everywhere a monetary phenomenon. Yes, expectations matter. But so do other things.

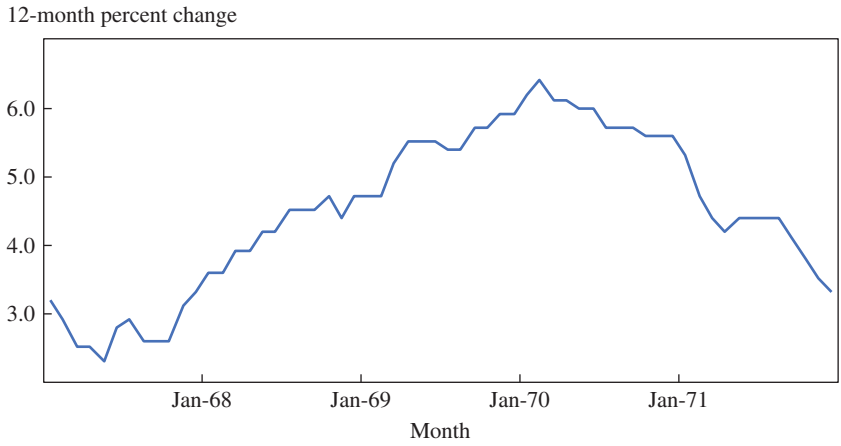
A QUIXOTIC GESTURE? Readers should realize that Reis set himself an almost impossible task in this paper, making it unsurprising that his conclusions are not entirely convincing. The wonder is that he made any progress at all, given that (in his words) "between 1970 and 1995, many anchors were lost, but there are almost no expectations data; between 1995 and 2020, there are data, but no lost anchors." For the period on which he concentrates, the late 1960s and early 1970s in the United States, he is forced to cobble together what expectational data he can, even though the time horizon in the survey data "was for the most part one year" while "economic theory would suggest that it is longer-horizon inflation expectations that provide the anchor."

A less intrepid researcher might have given up right there. But instead, Reis makes creative, even ingenious, efforts to minimize these problems. I certainly don't claim that I could do better. But in the end, is the story believable?

THE BEGINNINGS OF THE GREAT INFLATION Reis's figure 10, panel A, summarizes his main conclusion about when the United States lost its inflation anchor. As he emphasizes, "the expectations data show an anchor already drifting between 1967 and 1970, well before the end of Bretton Woods or the oil price shocks." According to his estimate, the expectational anchor drifted up by 2.5 percentage points between 1967 and 1970. (But then it went down in 1971.) Is that right? Did the United States really lose its anchor that early, rather than in 1972–1974, as many scholars would say?

Figure 1 shows the CPI inflation rate (measured from twelve months previously) over the same time span as Reis's figure 10, panel A. Allowing for the imperfect alignment in time—Reis's numbers are annual while the CPI data are monthly—there is a striking resemblance between the two figures. In a word, Reis's constructed anchor echoes actual inflation. So let's review the conventional story of the lead-up to the Great Inflation.

Figure 1. CPI Inflation (Twelve-Month Percentage Change), 1967–1971



Source: Bureau of Labor Statistics.

Remember, I'm testing the parsimonious model expected inflation = *f* (recent actual inflation).

In 1965, the US economy appeared to be just about at full employment with very low inflation. Then President Lyndon Johnson ordered the first stages of the military buildup for the Vietnam War. His economic advisers, led first by Walter Heller and then by Arthur Okun, warned him that layering more aggregate demand atop a fully employed economy would cause inflation. And they urged him to raise taxes to pay for the war, to avoid overheating. Johnson refused, however; he wanted both guns *and* butter. Perhaps even more important, LBJ did not want tax hikes to make the costs of the war more visible to the American public (Okun 1970).

But the Federal Reserve perceived the inflationary danger, and it raised interest rates for about a year, from late 1965 until late 1966. These rate hikes enraged Johnson, who famously summoned William McChesney Martin down to Texas to barbecue him (only figuratively!). Martin produced a notable (and contemporaneously noted) credit crunch; and precipitated what was then called a "growth recession," a slowdown in economic growth that helped bring down inflation.[2] Yet Reis is critical of the Federal Reserve: "the monetary restraint was gone by the end of 1966."

2. The Martin-Johnson story is nicely told by Kevin Granville (2017).

True, but I wouldn't be quite so dismissive. Martin was, after all, defying a strong-willed president at a time when the Federal Reserve considered itself part of an economic team led by the administration. Furthermore, and amazingly to the modern eye, control of inflation was then considered more the responsibility of fiscal policy than of monetary policy. Here's a remarkable quotation from the 1968 *Economic Report of the President*: "It has been and remains the conviction of *both the Administration and the Federal Reserve System* that the Nation should depend on *fiscal policy, not monetary policy*, to carry the main burden of the additional restraint on the growth of demand that now appears necessary for 1968" (Council of Economic Advisers 1968; emphasis added). A statement like that, explicitly endorsed by the Federal Reserve, is simply unimaginable today.

So did fiscal policy carry the burden? Well, Johnson was finally convinced of the dangers of rising inflation by January 1967, at which time he recommended an income tax surcharge. Congress, however, required a lot more convincing; it didn't enact the surtax until June 1968. By then, inflation was above 4 percent and rising (Okun 1970).

The Federal Reserve didn't wait for Congress to act. Beginning in the fall of 1967, it embarked on a tightening cycle that would eventually raise the funds rate about 500 basis points in under two years. As the CPI graph (figure 1) makes clear, the inflation rate began to decline early in 1970. Reis condemns the Federal Reserve for being insufficiently aggressive in the 1966–1968 period—when the anchor started slipping away. Maybe so. But it seems to me that tight money played a major role in bringing inflation down from about 6 percent to about 3.5 percent *before* President Richard Nixon instituted wage-price controls in August 1971.

Was the anchor (as a noun) lost by 1970? I'm not as convinced as Reis is. But, more important, there was no anchoring (a verb) at all. The United States would not acquire any until we went on the Volcker standard in the early 1980s.

That said, inflation did soar as price controls were being lifted in 1973–1974 (Blinder and Newton 1981). The large food price shocks of 1972 and the stunning oil price shock of 1973–1974 were other major reasons, as Reis correctly notes. He also correctly observes that inflation did *not* revert to 1970–1971 levels once these large shocks passed through the system. With nothing to anchor inflation, inertia took over—until Volcker arrived at the Federal Reserve.

The Volcker standard was inherited by Alan Greenspan (becoming the Greenspan standard) and then by Ben Bernanke, who preferred to depersonalize and institutionalize the anchor by adopting inflation targeting.

The Federal Reserve's more recent adoption of flexible average inflation targeting is the latest variation on that theme. But it is far too early to judge its success.

Please notice, however, that this entire conventional story about rising inflation makes no mention of expected inflation driving actual inflation. If I may apply Laplace's famous statement, made regarding a far weightier matter, I have no need of that hypothesis.

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COMMENT BY

YURIY GORODNICHENKO The Great Inflation of the 1970s left many enduring marks on macroeconomic thinking and policy. For example, inflation expectations moved from relative obscurity to a key element for policymaking. But what determines inflation expectations? How should we