



# Economic Letter

## Central Bank Communication Must Overcome the Public's Limited Attention Span

by Antonella Tutino

**ABSTRACT:** It is critical that central bankers have the ability to communicate their monetary policy goals and intentions involving employment and price stability to the public. The task is complicated in an economy that includes many firms and households in an era of information overload.

Central bank communications are an important monetary policy tool. Policymakers' economic outlooks, goals and intentions regarding future financial conditions are closely watched.

This is especially true when a central bank's primary policy instrument—the short-term interest rate—is near zero, a situation many advanced economies face today. The private sector relies on its perception of central bank economic expectations when it considers changes to its production of goods and services or the prices it charges for them.

Additionally, central bank short-term policy rate changes—in both low-rate and more normal-rate environments—fulfill an informational role, conveying assessments about risks to the economic outlook.

The public generally pays less attention to economic news than a central bank, which has hundreds of economists dedicated to processing information about current and future conditions.<sup>1</sup> Moreover, the public is composed of many households and firms exposed to an abundance of material on many topics and has a limited ability and less incentive than central bankers to pro-

cess or analyze economic information. Instead, it picks and chooses—exhibiting “rationally inattentive” behavior.<sup>2</sup>

Under these circumstances, a central bank should be concerned about overwhelming the private sector with too many details in its pronouncements. In so doing, it runs the risk that the less-than-fully engaged public may misinterpret the statements, leading to an unintentional and counterproductive response.

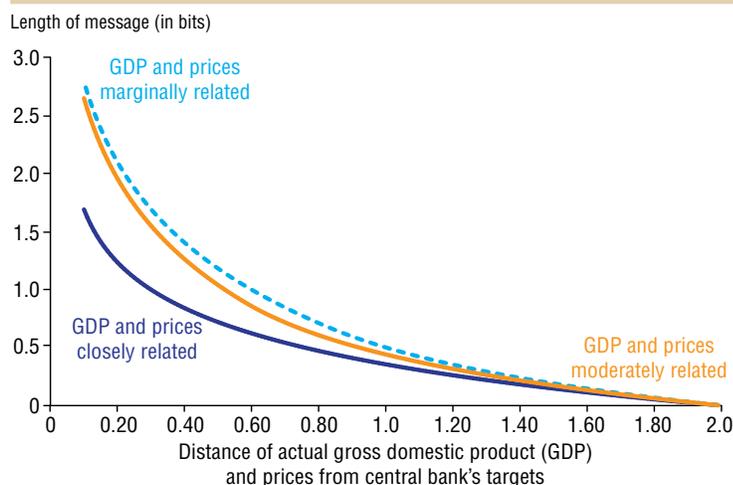
Central banks, with the explosion of new media outlets, have more opportunities than ever to provide information, while the private sector must choose from the competing media sources. Thus, for a central bank to remain relevant, it must carefully ponder what to say and whether changes in the economic environment warrant the public's attention.

### Measuring the Message

One parameter of a policymaker pronouncement is the length of the message. It turns out that the length depends on how much an economic shock affects consumer demand (for example, falling house prices) and the supply of inputs for companies (for example, higher oil

Chart  
1

## Longer Central Bank Messages Must Stay on Target



NOTES: Length of message is measured in bits of information, ranging from short (0 bits) to long message (3 bits). Distance of actual GDP and prices from central bank's targets is an indicator of the combined differences between realized GDP and prices and the central bank's full-employment and inflation targets. A value of 0 indicates that the economy needs to be on target at all times. An increase in the distance indicates that the central bank tolerates deviations of GDP and prices from the target.

SOURCE: Author's calculations.

prices). Demand and supply in this context are often related.

Based on research on public signaling and communication, three principal results emerge regarding the length of central bank messages.<sup>3</sup>

First, following economic shocks, a central bank can exploit interactions between output (typically shown as a change to the gross domestic product (GDP)) and inflation to effectively influence both consumers and firms with one short message.

Second, the length of the message depends on the relative emphasis the central bank places on two indicators. The output gap is the difference between realized GDP and the output the economy is capable of producing; the inflation gap is the difference between realized inflation and the policymakers' target for price growth.<sup>4</sup> When a central bank pursues both GDP and inflation targets equally, the message is longer than when only one is the focus.

Third, the length of the message depends on the relative volatility of GDP and inflation—how much the total of goods and services varies relative to moves in prices. The more volatile GDP is with respect to inflation, the more the central bank's public message should focus on output.

Although these outcomes are applicable to many central banks, the last two mirror the U.S. experience during the Great Recession. During the downturn and subsequent recovery, inflation didn't deviate as much from the Federal Reserve's central tendency as did output and employment, which declined more sharply. Thus, the volatility of output was of greater concern to policymakers than inflation.

As a result, most of the Federal Reserve announcements and speeches focused on stabilizing output and employment, with less emphasis on inflation until perhaps very recently.

### Modeling Central Bank Signals

Suppose a central bank has a dual mandate to simultaneously pursue a GDP target consistent with full employment and an inflation target consistent with price stability.

The central bank operates in an economy hit by both demand shocks that affect consumers—such as changes in house prices—as well as supply shocks that affect firms, such as changes to oil prices and other input costs. While firms decide prices, consumers on the demand side collectively generate GDP.

The central bank knows about all the shocks that hit the economy and has a

paradigm of how consumers and firms should react to ensure full employment and price stability. However, the paradigm assumes consumers and firms have an infinite ability to process economic news and work out the necessary responses.

In reality, the central bank faces a private sector with limited ability to process information. Thus, the central bank seeks the most succinct and effective message to meet its employment and inflation targets. The length of the message—its informativeness—is measured in bits of information.<sup>5</sup>

### Optimal Message Informativeness

A simplified version of a theoretical model helps illustrate how a central bank should craft its public message to stabilize output and inflation in an environment where both consumer demand and firms' supply are hit by shocks.<sup>6</sup>

To illustrate the properties of the optimal message indicated by the model, suppose that fluctuations of GDP and prices are fixed—that is, output and inflation are constant. Furthermore, suppose that the central bank places a higher emphasis on stabilizing GDP than prices.

If demand and supply shocks move together so that GDP and prices are closely related, the central bank's public message is shorter than when GDP and prices are not related. Moreover, the message is shorter the less preoccupied the central bank is with the public's behavior relative to its GDP and inflation targets (*Chart 1*).

If the central bank wants the public to behave in a way that is always consistent with full employment and the target inflation rate, the message tends to lengthen. The exact length of the message is a byproduct of policymakers' need to issue detailed prescriptions on how consumption and prices must change. That, in turn, reflects the central bank's tolerance of how much actual behavior departs from its targets.

By contrast, if policymakers tolerate deviations of realized GDP and inflation from their targets, the central bank has no need for extensive public announcements aimed at changing the behavior.

If supply and demand shocks make GDP and price move together—that is,

there is interdependency—the central bank can condense its message to one prescription valid for both firms and consumers. Thus, the central bank can exploit the interaction between firms’ and consumers’ activities to make its message succinct without jeopardizing effectiveness.

The informativeness of the message varies with the relative emphasis placed on the GDP and inflation target based on related output and prices (*Chart 2*).

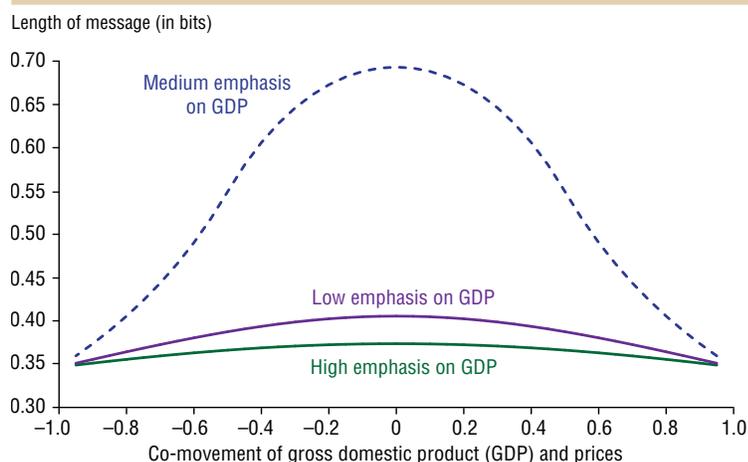
When the central bank pursues the inflation and output targets equally, the

message is longer than when the central bank is primarily focused on the GDP target. If the central bank believes that GDP is important, its message needs to be concise and centered on output instead of spreading the private sector’s limited attention span on GDP and prices

Next, consider the relationship between fluctuations in GDP and prices and the resulting message length (*Chart 3*). To simplify, suppose price variations are limited while GDP fluctuates from a

▶ *When the central bank pursues the inflation and output targets equally, the message is longer than when the central bank is primarily focused on the GDP target.*

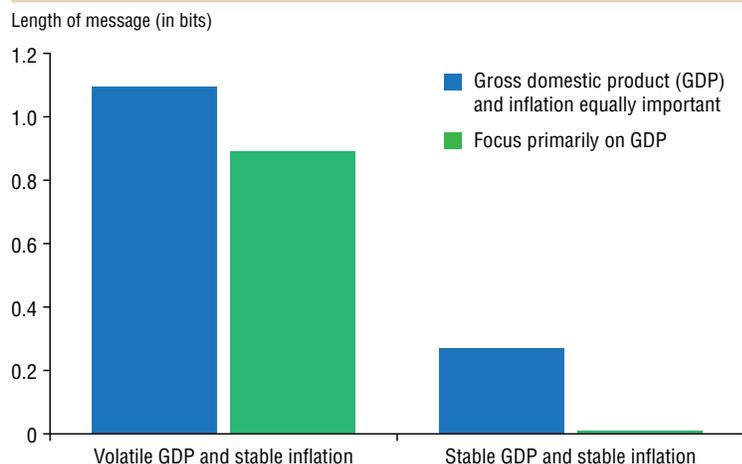
**Chart 2** | Message Shorter as Central Bank Focuses Mostly on GDP



NOTES: Length of message is measured in bits of information, ranging from short (0 bits) to long message (3 bits). Co-movement of GDP and prices refers to how changes in GDP affect prices. The range goes from -1 when GDP and prices move in the exact opposite direction to 1 when the move is perfectly synchronized. A value of 0 indicates they do not move together at all.

SOURCE: Author’s calculations.

**Chart 3** | Central Bank Messages Shorter When GDP Emphasized



NOTE: Length of message is measured in bits of information, ranging from short (0 bits) to long message (1.2 bits).

SOURCE: Author’s calculations.

**Table 1** | Central Banks May Opt for Silence amid Economic Target Stability

	Drastic changes in inflation	Stable inflation
Drastic changes in GDP	Long message	Message focuses on GDP
Stable GDP	Message focuses on inflation	No message

minimum of no volatility to high volatility. When output is stable, the central bank devotes little space in its public message to GDP developments.

However, when output is volatile and the central bank is focused on GDP, the public message is longer than it would have been in the case of stable output but shorter than if the central bank were to pursue both inflation and output target simultaneously. To effectively stabilize GDP, the central bank must provide enough guidance to the public to ensure an appropriate reaction; the information delivered must be focused and succinct so as not to be overwhelming.

Finally, the central bank should limit communication when both GDP and inflation are stable (*Table 1*). During times of changing GDP or inflation, the message should focus on the target exhibiting the larger changes.

### Implications for Policy

Even before the Great Recession, central banks around the world increased efforts to clearly communicate, using public messages as policy tools.

Since then, the number of central bank officers' speeches and their lengths have greatly increased, with diverging views of the economy presented to various media outlets.

If the public has limited attention and information-processing ability, the result of these speeches can lead to volatile behavior, with reactions sometimes occurring in response to changes in wording more than to actual content. Central banks should consider attracting the public's attention when it matters.

Moreover, a more effective communication strategy for the central bank could be to speak less often and make each speech count by delivering a more focused, cohesive and concise message.

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### Notes

<sup>1</sup> Rate changes would be minimal if the public were fully focused on economic news and perfectly capable of processing information about economic conditions and assessing the risks, because the private sector's agents

would know exactly what shocks they should reply to and adjust their decisions immediately and appropriately without need for the central bank to use the policy instrument as a signaling tool.

<sup>2</sup> See "Implication of Rational Inattention," by Christopher A. Sims, *Journal of Monetary Economics*, vol. 50, no. 3, 2003, pp. 665–90.

<sup>3</sup> See "Sequential Information Transmission, Empirical Consistency and Rational Inattention in Large Stochastic Economies," by Maxim Raginsky, Ehsan Shafieepoorford and Antonella Tutino, mimeo.

<sup>4</sup> Many central banks set targets for inflation. The Federal Reserve seeks an annual inflation rate of 2 percent.

<sup>5</sup> Information content is measured in bits from information theory. As an example, one bit of information corresponds to the answer to a "yes/no" question. See *Elements of Information Theory*, by Thomas M. Cover and Joy A. Thomas, Wiley Series in Telecommunications, 2nd ed., 2006.

<sup>6</sup> See note 3.

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