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A Look Back at "Look Through"

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Abstract

This paper examines the place that a "look-through" approach to price shocks has acquired in inflation-targeting frameworks. The "look-through" approach reflects the fact that, in the event of a shock that is likely (on impact) to put a sizable share of consumer prices under upward pressure, one option available to the central bank is to accommodate the initial price rise. In doing so, it can also attempt to ensure that future inflation rates, and inflation expectations, are insulated from the shock. Although the policy of "looking through" has achieved considerable acceptance, its origins are not widely understood. The analysis provided here indicates that key aspects of the "look-through" approach were aired in U.S. public discourse in 1973–1974, when the appropriate response to the first oil shock was being considered. The approach was subsequently refined in the course of several countries' experiences of price shocks from the mid-1970s to the early 1990s, with the specific "look through" terminology emerging at the end of this period. The connection between the "look-through" approach and the notion of inflation expectations being anchored by the central bank is also considered.

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JEL classification codes: E52; E58.

1. Introduction

Bernanke and Blanchard (2024, p. 2) observe: "Standard central banking doctrine holds that, so long as inflation expectations are reasonably well anchored, there is a case for 'looking through' temporary supply shocks rather than responding to the short-run increase in inflation."

This statement (which was subsequently quoted by Powell, 2024) accurately conveys the policymaking consensus.[1] But, in view of Ben Bernanke's prior body of writings, a surprising aspect of Bernanke and Blanchard's description is what was *not* in it. Bernanke and Blanchard neither attempted to give the source for the doctrinal position, nor did they indicate what was the first usage (in this context) of the term "looking through." In contrast, when discussing the Taylor principle, Bernanke (2007) sought to trace the origin of the term, and in a speech on central bank independence, Bernanke (2010) provided a germane David Ricardo quotation, as well as a series of statements by successive U.S. presidents on the importance of Federal Reserve independence. The fact that Bernanke and Blanchard were reticent on the questions of where the "looking through" aspect of central bank doctrine originated, and at what point the specific "looking through" terminology emerged, suggests that the answers to these questions are elusive.

The analysis that follows tries to make some headway in answering these questions. It does so first by outlining the origin, and development into an element of central bank doctrine, of the approach of "looking through"—being accommodative of price-level shocks, while attempting to prevent those shocks from leaving an imprint on the ongoing inflation rate. It also analyzes the process by which this policymaking approach became known as "looking through."

Some key points arising from the investigation are:

(1) Much of the practical discussion of the matter of "looking through" has taken place in countries other than the United States—such as the United Kingdom, Canada, New Zealand, and Australia (the four countries that are focused on below). This reflects the fact that these countries' greater openness and their having broad-based national sales taxes (Value Added Tax [VAT] or Goods and Services Tax [GST]) make them more susceptible to shocks—such as those associated with exchange-rate depreciations or VAT/GST increases—that are liable to affect a significant portion of the price level and

[1] As discussed below, however, this consensus refers more to shocks to relative prices or the overall price level than to shocks to potential GDP *per se*. In addition, the shocks in question often involve permanent changes (such as the introduction of a national sales tax). For that reason, "price-level shocks" may better describe the shocks in question than Bernanke and Blanchard's terminology of "temporary supply shocks."

that could potentially have longer-term repercussions for inflation and inflation expectations.

(2) Nevertheless, the matter of handling major price shocks has played a prominent part in discussions of U.S. economic policy, too. Notably, at the time of the first oil shock of 1973–1974, Paul Samuelson, citing James Tobin as the source of the idea, called for the U.S. authorities to manage aggregate demand in a manner that permitted a one-time price-level increase in response to the shock, with the aim of limiting the decline in U.S. real output and employment.

(3) During the 1970s, there were various policymaker discussions, particularly in Australia, that endorsed the idea of allowing a "first-round" effect of price shocks (the first-round effect being manifested in an upward price-level shift), while preventing "second-round" effects that would imply a sustained higher inflation rate. These discussions—which were made with particular reference to exchange-rate devaluations or depreciations—had considerable overlap in language with later years' "look-through" characterizations of the appropriate approach that a central bank should take to a price-level shock. Nevertheless, these 1970s discussions did not fully capture the modern "looking through" perspective. This was because they envisioned considerable reliance on *nonmonetary* policies in the execution of the look-through approach. Specifically, these policy perspectives were marred by the mindset prevailing at the time about inflation control—under which it was believed that wages and prices, and hence inflation, could be managed directly by incomes policy (that is, voluntary or compulsory centralized setting of wage and price increases). Therefore, the principle of insulating the ongoing inflation rate from sectoral or economy-wide price shocks was, at this point, not really part of *monetary policy doctrine*—as the task of inflation control was perceived, in this era, as being something that was largely separate from the responsibilities of monetary policy.

(4) In official circles, this view of where responsibility for price stability lay underwent change in earnest across many countries starting in the late 1970s. What emerged was a perspective—which has been maintained to the present day—in which inflation control is very closely associated with monetary policy. Furthermore, by the time New Zealand was poised to become the first inflation-targeting country in 1989–1990, the idea that monetary policy, as part of its responsibility for inflation control, had a special role in preventing the pass-through of price-level shocks into the ongoing inflation rate was well established and was endorsed by the Reserve Bank of New Zealand (RBNZ). It featured explicitly in the RBNZ's original inflation-targeting remit-document, via that document's references to how the RBNZ would respond to such events as GST increases and major external shocks. In the 1990s and 2000s, the idea of "looking through" would also be

articulated by central bank officials in other countries, including Canada and the United Kingdom, that had adopted inflation targeting.

(5) By 2003, the policy in question was being routinely described by multiple central banks, including the RBNZ and the Reserve Bank of Australia (RBA), as "looking through." The term "look through," however, had actually been coined well ahead of this period. In particular, the Bank of Canada provided an early usage of the term when, on the eve of the commencement of inflation targeting in Canada, the Bank's governor, John Crow, outlined the approach that monetary policy would take with regard to the 1990 increase in world oil prices.

Table 1. Evolution of the "look-through" approach

Period	Development
1973–1974	Advocacy of monetary accommodation of price-level shocks
1976–1977	Development of "first-round effects"/"second-round effects" terminology
1979	Monetary policy becomes the focus in executing "look-through" approach
1980s	Implications of anchoring of inflation expectations articulated
1989–1990	"Look-through" policy becomes part of RBNZ inflation targeting
1990–1991	Bank of Canada begins inflation targeting, coins "look-through" terminology
1992–1997	United Kingdom adopts inflation targeting, articulates "look-through" policy
1999–2003	International consolidation of "looking through" in inflation targeting

Some of the points given above are summarized in Table 1. Before elaborating on them, an explicit definition of "looking through" seems worthwhile. This is done in Section 2. Then subsequent sections (3 to 10) consider specific episodes across countries from 1973 to the early 2000s. It will be shown that, over this period, the "looking through" approach crystalized and became part of the consensus about monetary policy strategy. Section 11 concludes.

2. What is a "look-through" policy?

The basis for a "looking through" policy is the notion that central bank action—monetary policy accommodation or non-accommodation—is crucial in determining whether a shock that is initially felt in particular prices (or, for that matter, in the whole of the price index) leads to a permanent rise in the *ongoing inflation rate*. This point underlay a remark that Alan Greenspan, then Federal Reserve Chair, made in Congressional testimony in early 1989:

"Obviously, it [a gasoline tax] increases the price of gasoline... It does not change the rate of inflation. What it does is raise the price level each time you raise the gasoline tax. There is no reason that that would embody itself in a higher rate of inflation than would otherwise be the case."[2]

In further testimony given six months later, Greenspan elaborated:

"[W]ithout the acquiescence of the central bank, inflation cannot take root. Ultimately, the monetary authorities must face the responsibility for lasting price trends. While oil price shocks, droughts, higher taxes, or new government regulations may boost broad price indexes at one time or another, sustained inflation requires at least the forbearance of the central bank."[3]

A point that Greenspan did not make explicit in these discussions is that a sufficiently nonaccommodative central bank policy is capable of clawing back the increase in the price level associated with the shocks in question. In sidestepping this possibility, Greenspan was, in effect, indicating that such a clawing-back policy was not desirable—and that, instead, the central bank should accommodate the initial price-level shock (and, correspondingly, allow—or view without alarm—a "blip" in the form of higher inflation readings), while being vigilant in ensuring that the shock did not lead to sustained higher rates of inflation.[4] This combination—accommodation of the initial price-level shock; and forestalling a sustained rise in inflation by refusing to be accommodative of upward pressures on inflation that might stem from the price-level increase—is what constitutes the "look-through" approach.[5]

The look-through approach can be represented using an expectational Phillips curve:

$$\pi_t = \pi_t^e + \alpha(y_t - y_t^*) + u_t \qquad (1)$$

in which π_t is the quarterly inflation rate, π_t^e is an expected inflation rate, $(y_t - y_t^*)$ is the output

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[2] Testimony of January 24, 1989, in Committee on Banking, Finance, and Urban Affairs, U.S. House of Representatives (1989, p. 40).
[3] Greenspan (1989, pp. 14–15).
[4] This thought experiment refers to an idealized situation, as it omits lags. It presupposes that monetary policy can affect inflation and the price level just as rapidly as the shock or event in question does so. In the case in which there are slow responses of inflation to monetary policy actions, the question of whether a price-level shock is accommodated amounts to the matter of whether the central bank should, in the event of a shock, tighten monetary policy in a manner that *eventually* generates pressures that wind back the price-level increase.
[5] As discussed below, keeping expectations of future inflation anchored is a key feature of the second part of the look-through policy.

gap (the difference between log output and log potential GDP), $\alpha > 0$, and u_t is a white-noise price shock.

Many of the shocks that have been contemplated in practical discussions of a "look-through" policy are shocks that matter for potential output (y_t^*). For example, in aggregate-demand/aggregate-supply diagrams, an oil price rise is often represented as something that shifts the aggregate supply curve leftward, in both the short run and the long run, and so implies a permanent reduction in potential GDP. Nevertheless, practical discussions of "looking-through" policies tend to concentrate on the automatic, or inherent, implications for the price level of a shock—that is, they focus on reasons for expecting the shock to raise price indexes and corresponding measured inflation rates directly, rather than on forces that operate on inflation via their influence on the path of the output gap. In order to confine the discussion to these perceived direct effects and the associated monetary policy response, it is useful to abstract from any implications of a price-related shock for potential output and instead view that shock as consisting solely of a large, period-*t*, positive value of the price-shock series, u_t, in equation (1).

In these conditions, "looking through" implies a monetary policy in which aggregate demand is steered in a way that does not resist (and, in particular, does not attempt to block or offset) the direct impact effect of the price shock u_t on the current inflation rate (π_t) but that also aims to ensure that *future* inflation rates do not go up as a result of that shock.

This look-through policy is most clearly illustrated by considering the case in which the expected inflation rate (π_t^e) in the Phillips curve equation (1) consists of the expected future inflation rate, $E_t\, \pi_{t+1}$. In that case, a look-through policy consists of indicating (via the setting of current policy-instrument values, and by communications about future settings) that the output gap will be kept at zero in this and all future periods. So the advent of the price-level shock in period *t* will not trigger a monetary policy response that generates excess demand (that is, a response creating a positive output gap now or later, thereby permitting a higher ongoing inflation rate). In this situation, expected future inflation rates are insulated from the price shock and are kept constant. Taking expectations, as of period *t*, of the next-period inflation rate under this policy:

$$E_t\pi_{t+1} = E_t\pi_{t+2} + \alpha E_t(y_{t+1} - y^*_{t+1}) + E_t u_{t+1} \,. \qquad (2)$$

In equation (2), $E_t u_{t+1} = 0$, because u_t is assumed to be white noise, and the expected output gap is also zero under the look-through policy indicated. Consequently, equation (2) becomes:

$E_t\pi_{t+1} = E_t\pi_{t+2}$.

These expected future inflation rates are not only equal to each other but also to underlying inflation in period *t*—that is, $\pi_t - u_t$ (actual inflation net of the price-level shock).

A look-through policy therefore amounts to a monetary policy approach that keeps the output gap zero, and inflation expectations constant, in the face of a price-level shock, while allowing that shock to be manifested fully in the current inflation reading. The policy ensures that inflation returns to its pre-shock value after the period in which the shock occurred.

2.1 Diagrammatic illustrations

Figure 1 reproduces, in slightly simplified form, a useful diagram given in Batten (1981). The figure depicts the operation of a "look-through" policy.

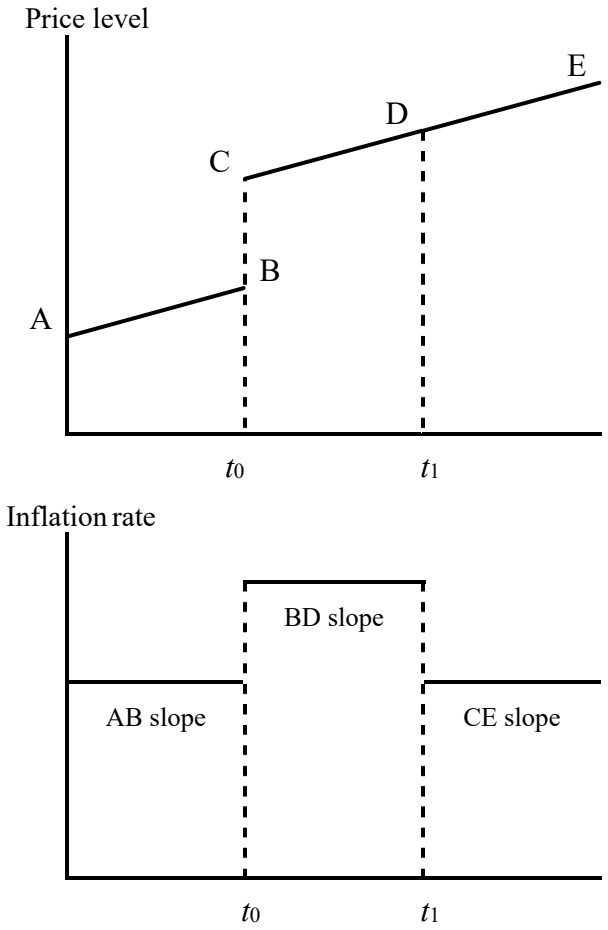

Figure 1. Price-level shocks under a look-through policy.
Source: Based on Batten (1981, Figure 1).

The figure brings out the point that, ordinarily, the source of lasting price-level movements is the trend price movement implied by the long-term inflation rate. In the figure, an event occurs that is distinct from this trend: a price-level shock occurs in period t_0 and is accommodated by the monetary authorities. The result is a shift in the intercept in the time path of the price level. But the slope capturing the price-level trend—the ongoing inflation rate—does not change. Measured inflation will, however, go up in the interval during which the price-level shock occurs. This increased rate is a "blip": recorded inflation rates (obtained using price changes measured over the period spanning periods t_0 and t_1—the interval during which the shock is realized) are temporarily higher (the bottom panel of Figure 1), as inflation readings in this period incorporate the effect of the permanent, but one-time, shift up in the price level.

Figures 2 and 3 relate a couple of empirical examples in which look-through-type policies have evidently been executed quite smoothly. Figure 2 shows FRED data on Denmark's quarterly CPI over 1967. Tait (1991, p. 8) notes that that a VAT was introduced in Denmark in July 1967 and permanently raised the CPI but only momentarily affected the CPI inflation rate. This pattern is evident in the once-and-for-all rise in the price index in 1967:Q3 in Figure 2.

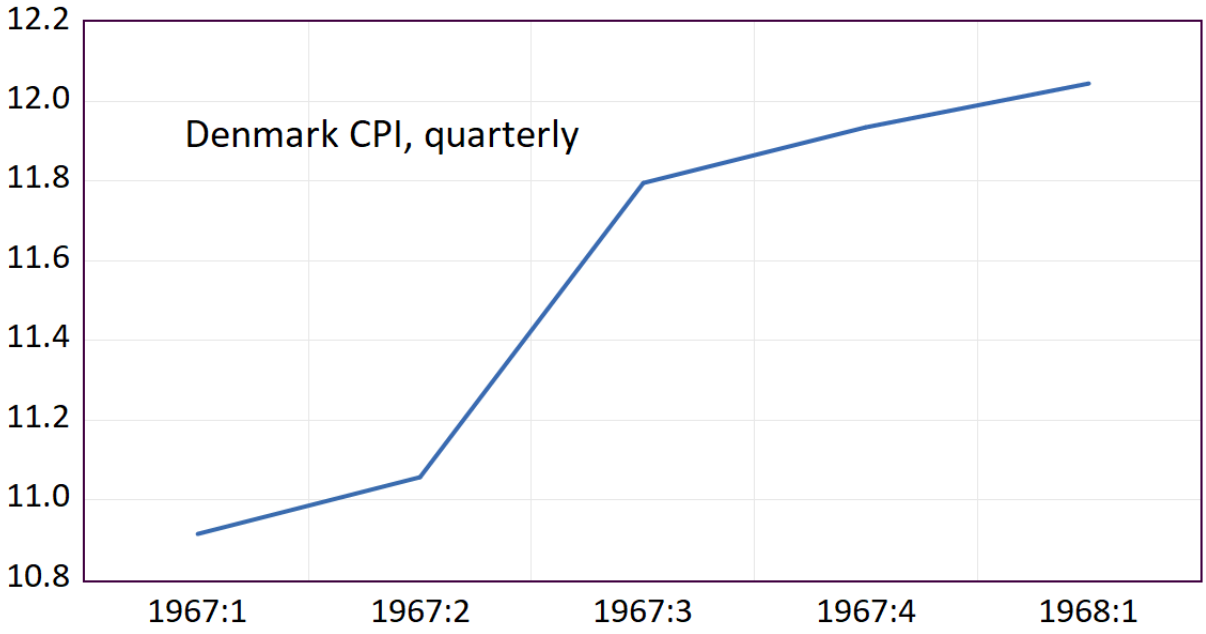

Figure 2: Denmark CPI, 1967–1968 (quarterly). Source: FRED portal, using OECD data.

Another example comes from the introduction of the GST in Australia in July 2000. Four-quarter CPI inflation adjusted to exclude the GST's effects remained in the RBA's 2 to 3 percent

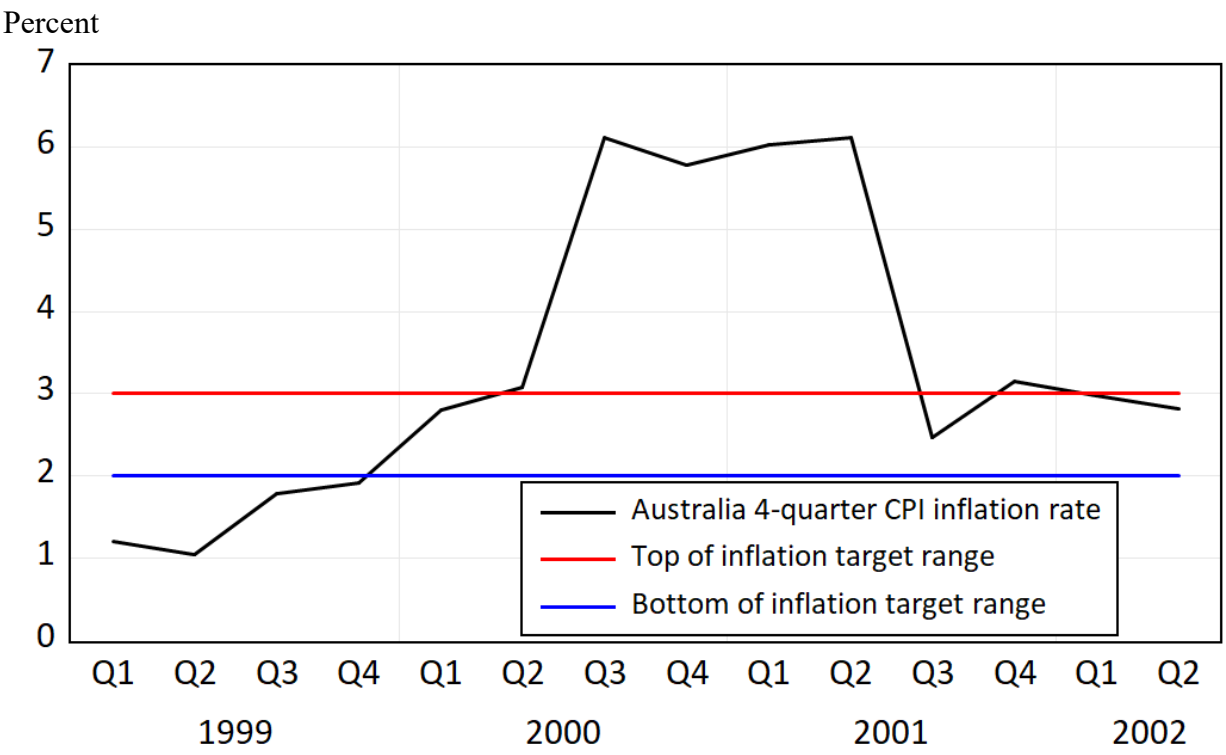

Figure 3. Four quarter CPI inflation rate, Australia, 1999:Q1–2002:Q2. Source: FRED portal.

target range during 2000–2001 (Reserve Bank of Australia, 2001, Graph 78, p. 61). Furthermore, Figure 3 shows that the Australia's headline four-quarter CPI inflation rate, though it rose strongly upon introduction of the GST, returned inside the target range once the GST-related quarter moved out of the four-quarter inflation calculation.

3. United States—debate over the first oil shock (1973–1974)

As the 1967 Denmark example indicates, the issue of the appropriate means of dealing with a price-level shock is of very long standing. But systematic modern discussions of "look-through" policies as a means of responding to shocks of this kind developed in earnest in the wake of the worldwide event of the first oil shock of 1973–1974. In particular, this first oil shock gave rise to a discussion of the appropriate setting of U.S. aggregate demand policy.

In the fourth quarter of 1973, major producer countries took a series of steps that meant that the world price of oil, which had already risen appreciably in the first nine months of 1973, underwent very large increases, with the moves up in the posted price culminating on January 1, 1974, when it attained a value about four times that prevailing two years earlier (Sobel, 1974, p. 21; Koopmann, Matthies, and Reszat, 1989, pp. 25–26). Against this background, Paul

Samuelson, writing in the London *Financial Times* (December 31, 1973), commented on some of the implications for monetary policy, the price level, and inflation:

"Professor James Tobin of Yale... states that it is not the business of the central bank to try to roll back or to prevent an increase in the price level occasioned by a once-and-for-all event like an oil boycott. I agree. Indeed, in a mixed economy where prices and wages are not symmetrically flexible downward as well as upward, I would think it the duty of the central bank to provide the money supply to support the indicated increase in the price index."[6]

This was an early articulation of the "looking through" argument. Like many discussions of price-level shocks in this era, it was expressed in money-supply terms. Samuelson described the appropriate policy as one in which the central bank consciously expanded the money stock in such a way that nominal aggregate spending and the price level shifted up permanently in response to the oil shock. One could, however, describe the equivalent policy in interest-rate terms, as it is tantamount to the central bank not responding to that portion of a rise in inflation that is arithmetically attributable to higher energy prices. James Tobin, in his own discussion of these matters, largely expressed the appropriate policy response in those terms.[7] So did John Taylor when, two decades later, he discussed issues associated with the practical implementation of the interest-rate rule that would become known as the Taylor rule. Taylor (1993, p. 211) observed that the higher inflation reading generated by an oil shock would, according to a literal reading of his rule formula, prompt an interest-rate increase. But he argued that a deviation from the rule was warranted in this case, as "an increase in interest rates to counteract the increase in the price level brought about by the oil shock would be inappropriate."

Samuelson's 1973 *Financial Times* description of appropriate policy omitted a major element of something that was in Taylor's 1993 discussion and that has come to be called the "look-through" approach. Samuelson did not make explicit the point that the success of the policy in containing the oil shock's impact on prices to a discrete increase in the price level rested on the one-time accommodation of the oil shock being understood as not providing a signal of further rounds of monetary expansion. His discussion presumed that the ongoing inflation rate would be

[6] Samuelson referred to the "oil boycott," as the United States and some other oil importers had been subjected to an embargo on the part of certain major oil-producing nations. This embargo (lasting from October 1973 until March 1974) was, however, separate from the world oil price increase (which continued after the lifting of the embargo), and the scenario outlined in Samuelson's discussion was really about responding to that price increase.

[7] For example, in Congressional testimony of June 23, 1976, Tobin remarked, "I think it would be a mistake, for example, in case it turns out that food shortages in Russia or elsewhere raise grain prices and food prices, if that would cause the Federal Reserve to adopt tight monetary policies." (In Joint Economic Committee, U.S. Congress, 1976, p. 86.)

unaffected by oil prices under the policy indicated. In fact, as discussed below, this was a shortcoming of much discussion during the 1970s of look-through-type policies: The prompt return of inflation to its pre-shock value, although presented as a desirable outcome, was not specifically seen as a result of a *monetary policy strategy* that delivered that outcome. In effect, Samuelson was giving monetary policy a central role in the *first* part of a look-through approach—monetary policy accommodating the price shock. But he was not stressing what came to be viewed as monetary policy's equally central role in the *second* part of a look-through approach—insulating post-shock inflation readings from any effect of the shock.

In the event, the mid-1970s did not provide clear-cut evidence on the issue of whether a "look through" policy had been followed by U.S. monetary policy. With regard to accommodation of the oil shock, the U.S. recession of 1973–1975 led James Tobin to complain that the Federal Reserve had done the opposite of accommodation. In his view, a "policy-induced recession" had resulted from the Federal Reserve tightening monetary policy in response to high inflation that had, in turn, been magnified by the oil price rise (Tobin, 1976, p. 19; see also Tobin, 1977).

Interpretations of this period are, however, complicated by the numerous events occurring alongside the oil shock. There is a consensus that monetary policy restriction did play an important role in the mid-1970s recession (see, for example, Bernanke, Gertler, and Watson, 2004). But the tightening of monetary policy was in train long before the oil shock. By the later months of 1973, the Federal Reserve was well advanced in a monetary policy tightening, and the tightening continued into 1974. The restrictive stance, in turn, was in large part a reaction to excessive demand, and associated upward pressure on inflation, that had been put in place by prior developments—notably, considerable monetary policy ease during 1971–1972. So U.S. inflation in 1973 and 1974 was under severe upward pressure for reasons separate from the oil shock. Furthermore, the ending of wage and price controls magnified the fraction of the inflation upsurge that occurred in 1974, as opposed to earlier. In sum, although the Federal Reserve raised interest rates in 1973 and 1974, the fact that this occurred against a background of excessive demand and of widespread price rises means that this episode may not have been a case (as Tobin alleged) of a misguided monetary policy reaction to a one-time price-level shock.

4. Australia—devaluation and preventing second-round effects (1976–1977)

The later years of the Bretton Woods regime and early years of the floating-exchange-rate era saw more frequent instances of large devaluations and depreciations against the U.S. dollar and other currencies. In the aftermath of these exchange-rate declines, policymakers in the affected

countries tended to emphasize the need to prevent repercussions of the devaluation or depreciation for domestic prices and costs. This desire to contain the national price response to exchange-rate declines—essentially, to limit the consumer-price reaction to the import-price component of consumer price indexes—in part reflected the traditional position that a country should make efforts to maintain the improvement in its international competitiveness that a large fall in its exchange rate engendered.[8] In the high-inflation environment of the 1970s, however, periods following exchange-rate declines also came to be strongly associated with policymaker concerns that the exchange-rate movement should not be allowed to generate a lasting interruption of progress in lowering inflation. On some dimensions, the statements expressing these concerns anticipated the modern "look-through" consensus.

A notable discussion in this respect arose in Australia in 1976–1977. In response to the end of the Bretton Woods regime, Australia initially adopted an adjustable-peg exchange-rate regime. Therefore, in contrast to floating-exchange-rate arrangements prevailing in many countries by the mid-1970s, the Australian government still made explicit decisions about the value of the exchange rate. One of the major decisions made during this period was in late November 1976, when the Australian dollar was devalued by 17.5 percent on an effective-exchange-rate basis (with further adjustments through mid-February 1977 reducing the net amount of devaluation to 12.2 percent).[9] In February 1977, in the wake of the devaluation, Prime Minister Malcolm Fraser observed:

"What is now required is that we do not relax our efforts to get on top of inflation. If we did relax, the substantial progress in achieving economic recovery I outlined earlier would be quickly undone, and the potential benefits of devaluation would not be realized. This will happen if first-round effects were permitted to snowball, through wage indexation and a lax fiscal and monetary environment, into a renewed inflationary surge." (M. Fraser, 1977.)

The references in Fraser's remarks to a distinction between "first-round" (in this case, referring to import prices) and "second-round" (domestic costs and prices) effects of a price shock used

[8] An exchange-rate adjustment that occurred early in the Bretton Woods era was the devaluation of the U.K. pound sterling in 1949, and after this took place, the Federal Reserve Bank of Philadelphia's Karl Bopp described the standard view about what needed to accompany a devaluation: "you can't permit your home prices to go up, because if you do that you take away with the increase in prices what you tried to gain by reducing the value of your currency." (In Federal Reserve Bank of Philadelphia, 1949, p. 11.) The notion that major exchange-rate changes should be fully felt in import prices but should not be permitted to generate wider price movements in the home economy also underlay Meade's (1951) recommendation that the government of an open economy should float its exchange rate and seek stability in a price index covering domestically produced goods.

[9] See https://www.rba.gov.au/publications/annual-reports/rba/1977/eco-eco-policies.html.

terminology that would become commonplace.[10] When inflation targeting became a widespread practice across countries in the 1990s and 2000s, this terminology would be deployed in many official discussions and outside commentaries about appropriate monetary policy responses to price shocks. So, too, would be the sentiment, articulated in Fraser's statement, that second-round effects of these shocks should be avoided.

Nevertheless, it would be too much to say that the "look-through" element of central bank doctrine was expressed fully in the above statement. There are two reasons for concluding that the policy approach envisioned by the Australian authorities in 1976–1977 did not coincide with the modern "look-through" perspective.

First, the statement by Prime Minister Fraser did not refer to inflation expectations.[11] In contrast, references to maintaining inflation expectations on a downward or constant path in the face of an external shock are a major element of modern-day expositions of a "look-through" approach.

Second, the Australian government's call to limit the response of inflation to devaluation was not squarely focused on monetary policy. Although the Fraser statement quoted above gave a "lax monetary and fiscal environment" as one feature that should be avoided in preventing second-round effects, it did so only after mentioning, as a separate development to be eschewed, "wage indexation." This listing reflected the largely nonmonetary perspective on inflation prevalent in Australia at the time. That perspective informed other post-devaluation statements by Australian officials, including the Treasurer (the Cabinet minister responsible for fiscal policy—as well as monetary policy, as the RBA lacked instrument independence at this point), Phillip Lynch. Lynch had stated that "the government would be doing everything in its power to ensure that any identifiable effects of the devaluation decision upon the consumer price index did not flow on into wages either through national wage hearings or more generally."[12]

Statements of this kind presented direct management of wages and prices via nonmonetary means (in Australia's case, via the government pressing its case at hearings of wage-setting tribunals) as both a feasible and central part of inflation control. This view of how inflation should be addressed informed policymakers' views about how to avoid second-round effects of

[10] Examples are provided below of the "first-round effects"/"second-round effects" terminology being used over the subsequent quarter-century, when various countries faced price shocks. This terminology would be embraced by Bernanke, Laubach, Mishkin, and Posen (1999, pp. 94, 118). See also Musalem (2025) for a recent example.
[11] Or, as they were typically called in this era, "inflationary expectations." (The practice of shortening "inflationary" to "inflation" in this expression really only set in during recent decades.)
[12] Quoted in *Parliamentary Debates* (*Hansard*)*: House of Representatives* (Australia), November 30, 1976, p. 2943.

devaluations or other price-level shocks.[13] It follows that avoiding second-round effects of a price-level shock was not, at this stage, part of *central bank doctrine*—because the key role that monetary policy played in steering the rate of inflation was not accepted by policymakers in many countries in the 1970s.

5. United Kingdom—VAT increase (1979)

The Thatcher Government was elected in the United Kingdom in 1979. In contrast to its predecessors, and to many governments and central banks earlier in other countries up to that time, it explicitly viewed inflation control as the task of monetary policy. This thinking underlay U.K. policymakers' communication about an early policy initiative taken by the government: a near-doubling of the rate associated with the country's principal indirect tax—VAT—from 8 to 15 percent, to be implemented in the third quarter of 1979.

Government ministers associated with the Treasury (which was in charge of both monetary and fiscal policy at the time) presented the VAT as a one-time price-level shock that would not be allowed to give rise to a permanent step-up in the inflation rate. For example, in the House of Commons, Nigel Lawson outlined matters as follows: "In the context of VAT, the honorable Gentleman asked me what was meant by a 'once-and-for-all' increase... [It] means that there is a great distinction between a once-and-for-all shift in taxation—which has an immediate impact on the retail price index, though no long-term impact—and the process of inflation—which is a continuing process in which prices are going up week in, week out, month in, month out, year in, year out. That is the distinction between a once-and-for-all switch in taxation and continuing the process of inflation."[14] In the House of Lords, another Treasury minister, Francis Cockfield, correspondingly observed: "The measures taken in the Budget change the price level once and for all. They do not in themselves increase the underlying rate of inflation."[15]

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[13] James Tobin—who, as indicated above, was an early exponent of the first part of the look-through approach, namely, accommodating price-level shocks—likewise saw the insulation of the inflation rate from price-level shocks as a task to be assigned to incomes policy, not monetary policy. For example, in late 1974 he stated: "it has seemed to me all year that the biggest problem of the anti-inflation policy of the United States was to try to prevent the commodity inflation from being built into the more permanent, underlying wage-price-wage spiral… But the way to prevent it is not a tight monetary policy, but some kind of incomes policy." (Testimony of October 1, 1974, in Joint Economic Committee, U.S. Congress, 1974, pp. 70–71.)

[14] *House of Commons Debates* (United Kingdom), June 13, 1979, p. 571, available at https://api.parliament.uk/historic-hansard/commons/1979/jun/13/budget-resolutions-and-economic-situation#S5CV0968P0_19790613_HOC_340.

[15] *House of Lords Debates* (United Kingdom), June 19, 1979, p. 844, available at https://api.parliament.uk/historic-hansard/lords/1979/jun/19/the-economic-strategy-budget-statement#S5LV0400P0_19790619_HOL_105.

These statements indicated that the monetary authorities would not view the rise in inflation associated with the VAT increase as warranting a monetary policy tightening and that they regarded themselves as capable of steering the post-VAT inflation rate. The statements therefore amounted to an expression of a "look-through" policy at the official level.

That said, it should be stressed that the U.K. experience of 1979–1981, like the 1973–1975 U.S. episode, featured many major events, whose joint presence makes it difficult to determine whether a "look-through" policy was, in fact, successfully executed. During the same period in which the Thatcher Government was indicating that it would not act against temporarily higher inflation associated with the VAT increase, it was already implementing a major monetary policy tightening, prompted by excessive demand and reflecting the government's monetary policy-centered disinflation policy. The U.K. economy experienced a stagflationary recession in 1979–1981. But this outcome likely reflected primarily the tightening of monetary policy being enacted for reasons separate from the VAT increase, as well as the second oil shock.

This U.K. episode is, however, notable, for featuring one of the most explicit articulations made up to this point of a monetary policy-oriented "look-through" approach. In November 1979, an article in the London *Times* newspaper, Alan Budd—an academic economist close to the Thatcher Government—remarked:

"A case could have been made for some expansion of the money supply to accommodate the increase in the price level caused directly by the raising of VAT and the oil price increases; but there is no case for accommodating subsequent increases in wages which attempt, mistakenly, to compensate for those price increases."

The main difference between Budd's vision of a "look-through" monetary policy approach and that in later discussions was Budd's sequential perspective. Budd seemed to *presume* that nominal wage growth increases would tend to emerge in the wake of an accommodated price-level shock—and that it was then monetary policy's task to rein these pressures in, and prevent an appreciable inflation reaction, by putting in place a restrictive stance.

Budd's scenario therefore apparently involved inflation expectations going up and prompting an increase in nominal wage growth, with the authorities then creating a negative output gap (thereby limiting the persistence of higher wage growth, as well as restricting the extent of the rise in inflation in the wake of wage increases). In contrast, more modern discussions would envision a situation in which (to use a term that became prevalent only years after Budd's

discussion) monetary policy *anchors* expectations of future inflation, so that—following an accommodated price-level shock—a take-off in nominal wage growth and inflation pressures does not happen in the first place. In that case, with inflation expectations not raised by the period-*t* price level shock, keeping the time path of the output gap at zero is sufficient to deliver inflation readings after period *t* that are equal to the rate prevailing prior to the shock.

After 1979, the notion that a credible price-stability-oriented monetary policy can deliver anchored inflation expectations, and so forestall the emergence of inflation pressures after a price-level shock, would become more prominent in discussions of inflation control. This development in thinking about monetary policy is now outlined.

6. Monetary policy's role in anchoring expectations of inflation

The lower inflation rate achieved in the United States via the Volcker disinflation of the early 1980s had, by mid-decade, come to be accepted as being largely permanent. This realization was manifested in major declines in U.S. longer-term interest rates after 1984. In a 1985 speech, Paul Volcker noted an implication of this development: "One reward of a record of greater stability—and a credible commitment to maintain that stability—will in fact be greater operational flexibility for the monetary authorities."[16]

Volcker's recognition of the implications of greater price stability for monetary policy flexibility reflected an evolution in his viewpoint that occurred as the high inflation of the 1970s was overcome in the early and mid-1980s. As of 1979–1980, the United States had double-digit inflation, and this period saw a major move toward higher longer-term inflation expectations being manifested in long-term interest rates. In this early part of his tenure as Federal Reserve Chair, Paul Volcker testified with respect to inflation expectations, "it's crucial that they be changed" and stressed the need to move to a state in which "people get the message that inflation is not an endless process [and] that government policy is dedicated toward bringing it under control."[17] It is against this background that Volcker looked at 1979–1980's second oil shock as something that should not be allowed to seep into ongoing inflation rates and the expected inflation rate. For example, in September 1979, Volcker (1979, pp. 1–2) stressed that "part of the challenge to economic policy today is to avoid to the extent possible a kind of 'leapfrogging' process whereby rising prices and costs in one sector—energy is the notable case—set off a

[16] Volcker (1985, p. 16).
[17] Quoted from his testimony of March 24, 1980, in Committee on the Budget, U.S. Senate (1980, pp. 288, 289).

whole sequence of adjustments in wages and prices in other sectors." He made numerous statements to the same effect in later months (see, for example, his October 1979 remarks in Lindsey, Orphanides, and Rasche, 2005, p. 205).

As part of the process of seeking to forestall a lasting rise in inflation, the Federal Reserve in 1979–1980 indicated that it was responding to current inflation movements, *including* those associated with energy price increases. Notably, an increase in the discount rate in mid-February 1980 was accompanied by a Federal Reserve Board press release stating that the Board was "particularly concerned that recent economic developments, including the large increase in the price of imported oil, are adding to inflationary pressures and may lead to further destabilizing pricing pressures."[18]

The background against which the Federal Reserve could conduct monetary policy was transformed by the fall in inflation after 1980—and, in particular, by the resumption in 1982 of lower-range single-digit inflation rates. By mid-decade, the disinflation that had been achieved and maintained by the Volcker Federal Reserve was being substantially reflected in much lower long-term interest rates. At this point, as his already-quoted 1985 remarks indicate, Volcker was satisfied that longer-term inflation expectations had been brought down lastingly to a much lower level. This development, as well as similar ones abroad, put central banks in a better position to follow "look-through" policies in response to price-level shocks. A climate of low longer-tern inflation expectations was more conducive to a decoupling of the period-to-period fluctuations in the inflation rate and expectations of future inflation developments.

In February 1993, by which time longer-term interest rates and long-term inflation expectations had fallen still further, Alan Greenspan discussed the implications of long-term inflation expectations being "effectively capped." Elaborating on Volcker's 1985 observation, Greenspan remarked that such a situation gave the Federal Reserve "far more room to maneuver—monetary policy, for example, could ease aggressively without igniting inflation expectations."[19]

This statement out the implications of a situation in which monetary policy took responsibility for price stability and was perceived as a guardian of longer-term inflation expectations. As both Volcker and Greenspan recognized, in these circumstances, monetary policy's scope to take expansionary actions to cushion the behavior of output in response to shocks was less prone to

[18] Quoted in Pine (1980, p. A9).
[19] Greenspan (1993, p. 5).

being construed as an embrace of an inflationary policy. Although their remarks were not specifically concerned with shocks that involved immediate upward pressure on the price level, they clearly applied to such a case. When a central bank has created an atmosphere in which longer-term inflation expectations are stable, it has generated conditions in which a "look-through" policy can be smoothly implemented in the event of a price shock: for, in that case, accommodation of a price-level shock can go hand in hand with expectations of future inflation being unaffected by the shock or by the central bank's accommodation of it. Under these circumstances, both nominal wage growth and inflation in the post-shock period should be able to continue at pre-shock rates, as neither has been upset by a rise in inflation expectations, and output and employment can also grow along paths that are undisturbed by the shock.[20]

The scope for monetary policy to serve the function of stabilizing long-term inflation expectations came to be increasingly appreciated across countries in the 1980s and early 1990s. The OECD noted in 1991, "Most OECD countries adopted firm anti-inflationary monetary policies in the early 1980s and achieved substantial and sustained reductions in inflation," and added: "There is a growing acceptance in most countries that monetary policy should focus primarily on the reduction of inflation."[21] Even in Australia—which had been a holdout in the 1980s, attempting to rely on nonmonetary policies against inflation (see Nelson, 2005), moved toward this acceptance, with RBA Governor Bernie Fraser noting in March 1993: "monetary policy… plays the crucial role of anchoring prices and price expectations in the medium term."[22]

The manner in which Governor Fraser's expressed the issue reflected newly prevalent terminology. Inflation expectations that had been stabilized at satisfactory levels, and that were now quite insensitive to incoming shocks, were referred to as "anchored" expectations, and the stability was viewed as flowing from the credibility of the monetary policy framework. The "anchor" terminology had already emerged in discussions of monetary policy options in the United Kingdom in the late 1980s.[23] In the United States, Alan Greenspan eventually himself embraced this terminology (after having, in previous years, referred instead to "capped" or

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[20] In the early 1990s, the implications were drawn together in a research-journal discussion by Ball (1991, p. 451): "The persistence of inflationary shocks might be reduced by a policy of accommodating the shocks' direct effects but then returning inflation to its original level. If price setters came to expect this policy, persistence could be choked off without higher unemployment."

[21] OECD (1991, pp. 47, 54).

[22] B.W. Fraser (1993, p. 3).

[23] For example, the *Economist* (October 20, 1990) stated: "The ERM [exchange rate mechanism] helps to anchor inflationary expectations by handing the monetary reins over to the Bundesbank." Earlier, Caff (1988) had remarked: "[U.K.] entry into the exchange rate mechanism… would act as a more effective anchor for inflationary expectations than the present system."

"impervious" inflation expectations). For example, in *Monetary Policy Report* testimony, Greenspan (2001) noted: "the effects of the rise in energy costs does not appear to have had broad inflationary effects, in contrast to some previous episodes when inflation expectations were not as well anchored."

7. New Zealand—Inflation targeting adoption and response to GST increase (1989–1990)

During 1989, New Zealand was proceeding with legislative and institutional changes that would lead, in early 1989, to the launch of the RBNZ's inflation-targeting regime. Also in that year, the national sales tax, the GST, was scheduled to be increased (in July), and, ahead of the increase, RBNZ Governor Don Brash indicated that he intended that this be contained to a one-time price level increase. Brash remarked in March 1989: "The challenge for [the] monetary authorities and, indeed, for all of us, is to prevent that single-quarter increase feeding through into inflationary expectations, the wage round, and so on."

At this point, inflation expectations in New Zealand remained elevated at near-double-digit rates associated with earlier regimes. Consequently, though Brash presented the best case as one in which nominal wage growth and inflation expectations did not increase, he implied that this combination of events may well not materialize even when the RBNZ adopted an anti-inflationary posture. Brash largely presented the RBNZ's options in terms of a threat to tighten monetary policy (create a more negative output gap), rather than in terms of being able to steer inflation expectations through a credible policy. He therefore remarked, "The GST is an increased tax on New Zealanders, [and] if we [the population] try to offset that by adjusting our wages to compensate, the effect would be either more inflation—if monetary policy accommodated that—or… further increases in unemployment if we didn't."[24]

Brash subsequently elaborated: "The Bank is determined that the downward trend in CPI inflation will be reestablished following the GST impact. This objective means that monetary policy will not accommodate any passing on of the GST increase into wage rises and second-round price increases." This "non-accommodating policy," he acknowledged, might be associated with temporarily higher unemployment.[25]

In the mid-1990s, after inflation had declined substantially, the RBNZ could view its inflation-

[24] This and the Brash quotation given in the previous paragraph were reported in Hannah (1989).
[25] Brash (1989).

targeting regime as having anchored inflation expectations and so was now better situated to contain inflation in the wake of price-level shocks without disturbing output and employment.

Both before and after the RBNZ's inflation-targeting regime anchored inflation expectations, the regime had an explicit "look-through" perspective on price-level shocks. This was evident in the Policy Targets Agreement—a document produced at the start of the regime that set out the formal arrangements of inflation targeting. This agreement (Brash and Caygill, 1990, p. 26) stated that, with regard to GST changes, monetary policy would allow "the direct effect of the change to impact on the price level, with no accommodation of second-round effects." Similarly, with regard to external shocks bearing on the exchange rate, "some or all of the direct price effect of a significant terms-of-trade change (whether positive or negative) [would be] accommodated[,] but it is not intended to accommodate any second-round influences," implying that the external shocks would "have, at most, only a transitory effect on the inflation rate."[26] The RBNZ indicated that it viewed accommodation of price shocks as being associated with lower variation in output and employment than an attempt to wind back the shocks' effect on the price level.[27]

8. Canada—adoption of inflation targeting and use of "look through" terminology (1990–1991)

Canada followed New Zealand in the adoption of inflation targeting, doing so in 1991. The Bank of Canada initiated this policy amid actual and prospective major price-level shocks: the rise in world oil prices in August 1990 following Iraq's invasion of Kuwait; and the scheduled introduction of Canada's GST in early 1991. In September 1990, the Bank of Canada's Governor described the approach that monetary policy would take (Crow, 1990, p. 39):

"While the initial direct effects of the GST on the price level (estimated to be about 1¼ percent) plus any oil price effects will lead to a jump in the consumer price index in the period ahead, it will be important for us to look through those effects and ensure that we continue to make progress in bringing down the underlying rate of inflation."

In these remarks, Crow (1990) therefore not only articulated the look-through approach but apparently also originated the phrase "look through" in connection with it.

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[26] See also Archer (1993).

[27] For example, it stated, "the Bank believes that it was appropriate to allow the direct impact of the increases in commodity prices to be reflected" in the CPI, as a "tightening of monetary policy settings to offset the impact of these temporary pressures on the inflation rate would have imposed unnecessary adjustments costs on the economy" (Reserve Bank of New Zealand, 1990, p. 12).

In the event, the world oil price increase receded in early 1991, leaving the GST introduction as the main price shock of that year. In the quarter in which the GST was introduced, Governor Crow stated at a press conference: "We want to underline that the GST, among other things, is a one-shot event—that the underlying path of inflation is going to be down."[28] A year later, Governor Crow was able to judge the introduction of inflation targeting as having been a success. He noted that the intended disinflation had taken place during 1991—after briefly-higher inflation rates associated with the GST's introduction: "the economy was able to absorb the GST… without provoking an inflationary spiral—a process of wages chasing prices, prices increasing further…"[29] He credited monetary policy communication with having helped secure this result, by indicating that any spiral would be curbed: "Certainly, the Bank of Canada has sought to make absolutely clear that monetary policy would not finance such a destructive process."[30]

9. United Kingdom—developing inflation targeting (1992–1997)

The United Kingdom was the next country to adopt inflation targeting, starting in 1992. Mervyn King was a senior Bank of England official from 1991 onward. After inflation targeting was introduced, King gave many speeches about the details of the inflation-targeting strategy—which was initially carried out jointly by the Treasury and the Bank of England, and later pursued solely by the Bank of England, specifically its Monetary Policy Committee (MPC), after the Bank became operationally independent in 1997.

King's speeches indicated that the authorities took a look-through perspective toward price-level shocks. In particular, King (1997, p. 438) observed: "changes in indirect taxes or commodity prices often affect the domestic price level but do not in themselves change the underlying rate of inflation. An appropriate monetary response is to accommodate the first-round price level

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[28] Quoted in Beauchesne (1991).

[29] In roughly the same period, Reserve Bank of New Zealand Governor Brash gave a similar assessment of 1990–1991 developments in his own country. Brash characterized monetary policy as having pursued an "appropriately firm" response to the oil price increase by limiting the effect on inflation to that associated with the initial price-level increase. In explaining this approach, Brash stated: "Experience has demonstrated the danger of allowing higher oil prices to lead to ongoing inflation. Monetary policy therefore aimed to limit significant spillover of oil costs into higher wages and second-round price increases." (Brash, 1991, pp. 225–226.)

[30] Crow (1992, p. 9). A statement by a later governor, Gordon Thiessen, expressed much the same point, but using the "first-round effects" terminology that was by then of long standing: "Removing indirect taxes from our core measure of inflation implies that the Bank will accommodate first-round effects of tax changes on the price level. However, we have also made it clear that we would not accommodate any ongoing inflation effects that might come from attempts to adjust salaries and wages to seek compensation for tax increases." (Thiessen, 1998, p. 13.)

effects, while ensuring that changes in the published twelve-month inflation rate do not alter inflation expectations and lead to second-round inflationary changes in wages and prices."[31]

This position would be endorsed by other members of the MPC. For example, a long-serving member of the MPC, Stephen Nickell, remarked during his MPC tenure: "the first-round, price-level effects [of] sudden exchange-rate moves should be accommodated, with monetary policy only acting on the potential second-round effects."[32]

10. Cementing of the "look-through" international consensus (1999–2003)

With inflation targeting being the monetary policy regime of several countries by the end of the 1990s, the look-through approach—along with the "look-through" terminology specifically—had become standard.

The influential monograph by Bernanke, Laubach, Mishkin, and Posen (1999) on the international inflation-targeting experience noted the RBNZ's being permitted to accommodate certain price shocks (p. 94), as well as the Bank of Canada's success in preventing the GST's 1991 introduction from having more than a short-term influence on inflation (pp. 118, 132–133). In these passages and elsewhere, the authors also stressed that anchored longer-term inflation expectations, and central banks' willingness to tighten in the event of those expectations rising, aided the handling of price shocks. Against this background, the authors' recommendation that the United States introduce inflation targeting included the stipulation that large price shocks—such as major oil-price movements—should be allowed to raise the price level (pp. 318–319). The authors therefore endorsed a "look-through" approach, albeit without using that terminology.

The "look-through" terminology had, however, spread across countries by this point. In the original inflation-targeting country of New Zealand, an article by an RBNZ staff economist that had appeared in the middle of the decade noted that successive inflation-targeting agreements since 1990 had "recognized that there are certain kinds of events or inflation developments that the [Reserve] Bank should 'look through' when determining the appropriate stance of monetary policy."[33] At the policymaking level, the RBNZ had by the late 1990s also embraced the "look-through" terminology, with the RBNZ's May 1999 monetary policy statement concluding, in

[31] In a similar vein, King (1994, p. 119) had previously stated: "A one-off change in the price level in response to higher indirect taxes might sensibly be accommodated."
[32] Nickell (2002, p. 338).
[33] Roger (1994, p. 331).

reference to "one-off near-term price level increases in certain items expected later this year," that the authorities would "set monetary policy so as to 'look through' the temporary rise in inflation, and focus on the medium-term outlook of mild downward inflationary pressure."[34] Similarly, RBNZ Governor Brash (2000, p. 59) observed, "the Reserve Bank is directed to ignore, or 'look through' in the jargon, the price effects of such [special] events." Brash's successor, Alan Bollard, subsequently reaffirmed that the RBNZ's approach was "to *look through* the first-round direct impacts of oil prices on CPI inflation… but to respond to the risk of more generalized inflation pressures arising from the shock, such as rising inflation expectations" (Hunt and Bollard, 2008, emphasis in original).

In Australia at the start of the twenty-first century, a looming price-level shock was the introduction of the country's GST. About a year ahead of the GST's introduction, the RBA (by now itself an inflation-targeting country for several years) issued a monetary policy statement in which it stated, "The Bank will be abstracting from the impact effect of the GST for the purpose of assessing the trend in inflation." (Reserve Bank of Australia, 1999, p. 2.) This passage, and a later similar one (p. 69), did not use the "looking through" terminology. But the perspective described clearly corresponded to a "look-through" approach and was described in those terms in media and OECD commentaries.[35] In the event, as shown in Figure 3 above, Australia's 2000–2001 experience provided an unambiguous case of successful execution of a look-through approach, and the RBA's (1999, p. 69) prediction that CPI inflation would "return to the target zone, as the GST impact drops out of the calculation" was realized. Subsequently, the RBA embraced the "look-through" language in its official public statements: for example, a 2003 document stated: "The medium-term focus of the inflation target provides the Bank with the flexibility to 'look through' temporary fluctuations in the CPI."[36]

11. Conclusion

The preceding analysis indicates that the "look-through" approach to the handling of price

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[34] Reserve Bank of New Zealand (1999, p. 31).

[35] For example, O'Loughlin and Wade (1999, p. 39) reported, "the Reserve [Bank] will 'look through' the one-off impact of the GST," and the OECD (2000, p. 60) stated: "The Reserve Bank has indicated that it will look through this first-round effect [of the GST] in formulating monetary policy, but it will need to resist any tendency for one-off price effects to flow on into ongoing inflation."

[36] This sentence, sourced to the RBA website, was quoted in a memorandum (September 12, 2011) by Federal Reserve Board/Federal Reserve Bank of New York staff to the Federal Open Market Committee ("Approaches to Clarifying the Conditionality in the Committee's Forward Guidance," available at https://www.federalreserve.gov/monetarypolicy/files/FOMC20110926memo01.pdf). The same wording appeared in an Australian government submission (APEC Economic Committee, 2003, p. 109).

shocks developed out of discussions of the appropriate response of stabilization policy to the first oil shock of 1973–1974. There had already been a longstanding tradition in stabilization policy that advocated responding to a terms-of-trade shock by insulating domestic costs, and prices of home-produced products, from the shock, while allowing the consumer price index to rise to reflect higher import prices. The high-inflation conditions of the 1970s, however, reinforced these types of arguments by suggesting that letting a price shock affect the current price level, but not future inflation, had the virtue of helping stabilize output and employment, while not jeopardizing longer-term efforts to bring inflation down and stabilize it at low levels. But what was typically missing from 1970s discussions of a response to price shocks was a recognition that monetary policy should be at the center of efforts to control inflation. Once economic policy across countries incorporated this recognition, the feasibility of the central bank being able to anchor inflation expectations was increasingly grasped. In turn, anchored inflation expectations made the smooth execution of a look-through approach to price shocks more feasible. With inflation-targeting countries agreed on the desirability of the "look-through" approach, that approach had become firmly embedded in central bank doctrine by the late 1990s.

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