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Uncertainty and Multiple Paradigms of the Transmission Mechanism

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Walter Engert and Jack Selody

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Walter Engert and Jack Selody

Department of Monetary and Financial Analysis,
Bank of Canada, Ottawa, ON, Canada K1A 0G9
e-mail: wengert@bank-banque-canada.ca
jselody@bank-banque-canada.ca

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Abstract

An important challenge facing central banks is making decisions under uncertainty about the dynamic effects of monetary policy actions. The authors stress the importance of explicitly recognizing uncertainty about the transmission mechanism when formulating policy advice. They argue that one way to manage monetary policy under uncertainty is to draw on both an output-gap paradigm and a money paradigm of the transmission mechanism to inform decision-making. Taking an eclectic, diversified approach to guide policy judgements could improve the policy outcome.

Résumé

Un important défi que les banques centrales ont à relever est de décider des mesures à prendre en matière de politique monétaire dans un contexte où les effets dynamiques de celles-ci ne sont pas connus avec certitude. Les auteurs soulignent l'importance qu'il y a à reconnaître expressément, au moment de formuler des conseils concernant la politique monétaire, l'incertitude qui entoure le mécanisme de transmission. Compte tenu de cette incertitude, ils soutiennent qu'un moyen d'éclairer la prise de décisions est de faire appel à la fois à deux modèles du mécanisme de transmission, soit un paradigme fondé sur l'écart de production et un autre axé sur la monnaie. En fondant les décisions en matière de politique monétaire sur une démarche éclectique, les autorités obtiendraient peut-être de meilleurs résultats.

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1. Introduction

A monetary policy framework requires five components: an objective or anchor; indicators to signal when policymakers need to react; a means to calibrate policy actions, that is, a way to decide on the adjustments required to the stance of policy over the coming quarters; an instrument with which to implement policy actions; and, a way to explain policy actions to the public.

In the current Canadian monetary policy framework, an explicit target for controlling CPI inflation provides the anchor for policy. A need for policy action is signalled by various leading indicators, especially the output gap but including monetary aggregates, and conditioned by expert judgement to compensate for the uncertainty inherent in interpreting economic indicators. The size and timing of policy actions are based in part on analysis from economic models — in particular, the Bank of Canada's Quarterly Projection Model (QPM). The instrument of policy is the overnight interest rate and various communication vehicles provide a way to explain actions taken by the Bank to achieve its inflation-control target.

This framework also embodies a detailed view of the monetary transmission mechanism. Monetary policy action affects short-term interest rates and the exchange rate, and these changes in turn affect the evolution of the output gap and inflation expectations, and these ultimately determine inflation.[1]

In other words, this paradigm consists of an IS relationship between monetary conditions and the output gap, and a Phillips-curve relating the output gap and inflation expectations to future changes in the rate of inflation. This story is represented formally by, and is the essence of, the dynamic adjustment paths to a steady state in QPM.

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[1] Changes in short-term interest rates and the exchange rate are summarized formally by the monetary conditions index, or MCI. For more on the construction of the MCI and its use at the Bank of Canada, see Freedman (1995).

According to this paradigm, it is mainly interest rates and exchange rates that influence the economic behaviour that underlies aggregate demand and inflation. In contrast, financial variables such as money and credit do not play a causal role in the transmission of monetary policy. Rather, the evolution of money and credit over time is determined simply by their passive accommodation of aggregate demand and inflation. As a result, money and credit are best seen as indicators of economic activity.[2]

This "passive-money" paradigm is not the only one that can be used to explain inflation. An alternative view is that money and credit are active parts of the transmission mechanism in that excess money and credit expansion causes inflation. According to this "active-money" paradigm, money and credit expansion causes the economic behaviour that determines price setting in aggregate.

Needless to say, there has been much debate in academic circles about which paradigm better represents the monetary transmission mechanism. Both paradigms have been used to increase our understanding of inflation, yet neither provides a completely satisfying explanation of the monetary transmission process. In other words, economists remain uncertain about the monetary transmission process and there remains much to be learned.

In this paper, we discuss uncertainty about the transmission mechanism from the perspective of the tools that economists use to give advice to monetary policy decision makers. We stress the importance of explicitly recognizing uncertainty about the transmission mechanism when formulating policy advice. In particular, we ask whether it would be helpful to take both the passive-money paradigm and the active-money paradigm seriously when formulating monetary policy advice.

We suggest that monetary policy is probably best served by drawing on different models that conform to one or the other of these

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2. See Duguay (1994) for a technical, empirical presentation of this view of the transmission mechanism and aggregate-price formation.

two paradigms of the transmission mechanism. Given uncertainty about the transmission mechanism, it seems likely that taking a diversified approach to policy analysis would reduce the risk of making errors in policy advice on how to achieve and maintain price stability.

In the next section, we describe a dilemma facing central bank economists — characterized by the need for a view about the transmission mechanism, but also by uncertainty about business-cycle dynamics. In Section 3, we outline the basis for an approach to addressing this dilemma, which involves considering the transmission mechanism and policy options from the two critical junctures of what seems to matter most: the expansion of liquidity and the role of the output gap. Concluding remarks are in Section 4.

2. Establishing Order

(a) The need for a view

Providing monetary policy advice requires a clearly specified view of how the economy works. In addition, data must be assembled and represented so as to make the economy, or more specifically, a view about the economy, seem sensible. That is, the monetary transmission mechanism must be represented in a tractable way. Only then can policy makers react coherently — within the context of the economist's filtered view of the world — to achieve their policy goals. Only by clearly summarizing a view about business-cycle dynamics in a (more-or-less) internally consistent fashion, and broadly consistent with our observations of the world, do economists have a useful tool for formulating policy advice.

A straightforward transmission mechanism story can be found in the Governor Thiessen's recent Hermes-Glendon Lecture (1995):

> "Fundamentally, monetary policy is about the pace of monetary expansion. The rate at which the central bank allows base money to expand over time will either encourage or restrain the financial

> system in its expansion of money and credit. This in turn will influence the demand for goods and services in the economy. And it is the level of demand relative to the ability of the economy to produce goods and services that eventually determines the rate of inflation."

While this story focusses on the expansion of base money, a similar interpretation that incorporates elements of both the active-money and passive-money views focusses on other monetary aggregates. In that case, monetary policy action leads to adjustments of the terms and conditions affecting the expansion of money and credit. The idea that these adjustments influence the endogenous expansion of liquidity by financial intermediaries, and so in turn, affect the expansion of aggregate demand, is a feature of the active-money view. The idea that inflation is largely determined by excess demand for goods and services is a feature of the passive-money view.

However, as it stands, this simple story is not a sufficient framework for policy advice. Making it operational requires that we model the underlying economic behaviour implicit in the story and formalize a number of highly abstract concepts. Then we need to measure or synthesize these formalizations. And we also need to establish quantified relationships among these formalized abstractions. So the process of making a story operational faces numerous difficulties.

To begin with, there are no clear analogues to the central concepts of either the passive-money or active-money views of the transmission mechanism. For example, monetary expansion, liquidity, potential output and the output gap are all significant abstractions that are not easily transformed into empirical analogues. Arguably, the same could be said about aggregate demand and price levels. Moreover, quantitative relationships among these abstractions are frequently (and often unavoidably) based on relatively simple (linear) techniques. Statistical inference is determined by whatever set of episodes we happen to have in the data with which we can estimate or calibrate our models, and depends on prior views that provide needed identification restrictions.

For instance, to generate observations for “liquidity”, or readily available spending power, we rely on various monetary and credit aggregates. And to estimate the demand for money, the usual practice is to generate functions that (unavoidably) ignore unobservable determinants which theory suggests are relevant, such as expected inflation, expected relative returns and risk on (all) competing assets (including human capital), and wealth (including the expected present value of labour income). Moreover, empirical work often focuses on relatively high-frequency relationships, although the liquidity/inflation link is a low-frequency, long-term proposition.[3]

As another example of the difficulty of translating abstractions into operational measures, consider unobservable aggregate supply. There are a variety of ways to estimate potential output, and they depend critically on assumptions regarding the nature of different types of unobservable shocks and the time-series processes generating them.[4]

At the Bank of Canada, a multivariate time-series filter is used to synthesize potential output, conditioned by a set of relationships consistent with the calibrated structure of QPM. An important part of that conditioning information is an error term from an inflation-expectations-augmented Phillips curve. In this way, the output gap is “measured” so as to minimize near-term forecast errors of the Phillips curve. Crudely put, to measure potential output, the output gap is synthesized so that it explains inflation in the context of a particular model of the economy. It is hard to imagine a procedure

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3. For a discussion of the conceptual and practical problems in coming up with a definition of liquidity, see Atta-Mensah (1993). See Friedman (1956), Laidler (1993) and Hendry (1995) for more on the determinants of money demand, and on the low-frequency, long-run nature of this relationship.

4. See, for example, McCallum (1996), and St-Amant and van Norden (1997).

that better illustrates the arduous translation of unobservable concepts and prior beliefs into operationally useful analogues.[5]

As a final example, consider that even “monetary policy action” — what the central bank transmits to the economy — is not a simple matter to observe in the data. Measuring monetary policy involves untangling it from the non-central bank influences in the available data. That is, to extract monetary policy action from variables like the 90-day commercial paper rate, the term spread, or the overnight rate, we need to unscramble the influences comprising these variables (by imposing identification restrictions based on prior views) and separate “monetary policy action” from other influences in the data — no easy trick.[6]

One implication of these difficulties is that capturing all important aspects of the transmission mechanism consistently within one model is not yet possible. No one has yet been able to build an internally consistent economic model that satisfactorily encompasses the essence of both the active-money and passive-money views. Internally consistent models have been built of each view individually, but not of the two together.

(b) Uncertainty about the transmission mechanism

Moving from a rudimentary story about the transmission mechanism to an operational representation introduces a host of challenges, and, despite technical sophistication, the monetary transmission mechanism is still the subject of much debate.

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5. This is not to criticize the procedure; on the contrary, there is much to be admired in the way that a diverse range of information is assimilated in the context of a particular model to generate a measure of an unobservable variable, potential output. Indeed, the same basic approach might be usefully followed to synthesize a measure of unobservable liquidity in the context of a corresponding model, such as the general-equilibrium model under development by Hendry and Zhang (1998). For a simple description of the Bank’s approach to measuring potential output, see Engert and Hendry (1998); for detailed treatments, see Laxton and Tetlow (1992) and Butler (1996).

6. For more on the challenges of identifying monetary policy action and empirically assessing its impact, see Armour, Engert and Fung (1996), Kasumovich (1996), or Fung and Kasumovich (1998), for example.

That the transmission mechanism is not well-understood by economists is certainly not a new or unique observation. Milton Friedman's famous program for monetary stability (1948, 1959) was based on a presumption of knowledge about monetary policy's long-run effects, but ignorance about business-cycle dynamics. Thirty years later, commenting approvingly on Friedman's analysis, Lucas (1980) observed that "the list of economic propositions sufficiently well grounded in theory and evidence to be useful in formulating aggregative policy is no longer now than it was in 1948."

More recently, McCallum (1996) pointed out that central bankers and academics agree that monetary policy has a dominating influence on the (average) inflation rate over time. As well, it is widely agreed that the transmission of monetary policy also involves shorter term, dynamic effects. However, according to McCallum, these are "poorly understood":

> "It is not just that the economics profession does not have a well-tested quantitative model of the quarter-to-quarter dynamics, the situation is much worse than that: we do not even have any basic agreement about the qualitative nature of the mechanism."

McCallum points out that there are many competing specifications regarding the precise nature of the connection between monetary policy actions and their dynamic consequences, and he concludes that "there is little empirical basis for much narrowing of the range of contenders."

Similarly, in his Nobel Lecture, Lucas (1996) argues that the question of how changes in the conduct of monetary policy affect inflation, employment and production "has not been given anything like a fully satisfactory answer."

Finally, pointing to the periodic substantial changes in macroeconomic thinking, Summers (1996) recently counselled prudence. He suggests that it would be a misreading of history to think that the economics profession has identified the truth about the transmission mechanism, or that current views will not look archaic another twenty years from now.

(c) A dilemma

To think clearly about the outlook, and to analyse the impact of policy actions, there must be a view about the transmission mechanism and business-cycle dynamics.[7] However, knowledge of the transmission mechanism and business-cycle dynamics is rudimentary. Accordingly, a fundamental challenge facing central banks is making decisions under a good deal of uncertainty about the dynamic effects of their actions. The question then is: how does one best formulate monetary policy advice when the transmission mechanism is characterized by uncertainty?

3. What Matters?

An approach to addressing this dilemma is to consider the monetary transmission mechanism in a way that enlarges the set of useful information for decision-making. In particular, we can assess the transmission mechanism from the two critical junctures of what seems to matter most: the expansion of liquidity (which is emphasized in the active-money paradigm) and the role of the output gap (which is emphasized in the passive-money paradigm).

(a) The output gap and liquidity

The passive-money view and the active-money view of the transmission mechanism can be distinguished by the roles of the output gap and liquidity expansion in the transmission mechanism.

In the passive-money view, the chain of events goes from policy action to aggregate demand, to the output gap and then to inflation. The expansion of liquidity has no causal significance in this paradigm: the evolution of money and credit is determined simply by their passive accommodation of the evolution of aggregate demand and inflation. Accordingly, the creation of *excessive* liquidity is not necessary for prices to rise, and an expansion of liquidity alone is not sufficient for a sustained inflation. Instead, a positive output gap is sufficient for sustained inflation, although it is not necessary, since a change in inflation expectations alone can produce inflation as well. In either case though, a sustained expansion of liquidity passively accompanies movements of the output gap and inflation expectations.

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[7] Even a program like Friedman's, which presumes ignorance about the transmission mechanism, in practice requires judgements about how to deal with shocks which might affect the achievement of monetary targets and price stability. For example, see Deutsche Bundesbank (1992), Schmid (1995) and Issing (1997).

In contrast, in the active-money view, *excessive* liquidity expansion is not only necessary, but, depending on the time frame, it is also sufficient for inflation. For example, suppose that the rate of liquidity expansion consistent with zero inflation were three per cent, and liquidity started to expand at a rate greater than three per cent. Regardless of the current level of the output gap and the current state of inflation expectations, at some point inflation would rise.

(b) What is causal?

It is clear then that liquidity and the output gap are the two central (and unobservable) variables in these two views of the transmission mechanism. However, what is causal? What fundamentally brings about the effects that concern us?

Research at the Bank of Canada has often used the assumption that the demand for money always equals, and determines, its supply. That is, interest rates adjust to maintain monetary equilibrium, leaving no excess money to be spent to affect inflation. This assumption denies money a causal role in determining inflation.

Consider, for example, a policy action that led to a fall in short-term interest rates. The assumption has been that the drop in short-term interest rates associated with the policy easing causes money demand to rise, so that money demand equals the increased money stock following from the policy easing. Indeed, it is the increase in money demand that drives the money supply to increase, and more importantly, money supply is seen as always equal to money demand in this view. As a result, no meaningful monetary disequilibrium is possible, leaving the causal influences to flow from the output gap to inflation through the Phillips curve.[8]

In his Hanson Lecture, Governor Crow (1988) was referring to this passive-money paradigm when he said that “monetary policy does not work in any important fashion through features such as...disequilibrium between the supply and demand for money...” On this view, while changes in money are not seen as causal, they may chronologically precede movements of output and inflation. With this sort of interpretation, one arrives at the view that monetary variables can be useful as leading indicators, but are not of greater substance.

Against this passive-money view, there is a large literature with a long history that aims to explain persistence of monetary disequilibria and consequent price changes as part of the long process of restoring monetary equilibrium. These explanations are based primarily on the inter-temporal behaviour of multiple agents, uncertainty and information costs. (These are all features that do not fit into a conventional representative-agent, IS-LM view of the world.)

For example, consider a monetary policy easing according to an active-money view. Suppose that the central bank acts to ease monetary conditions in a sustained manner, leading to easier terms and conditions associated with financial intermediation, including lower short-term interest rates. As a result, firms and individuals are more willing to borrow and spend, and financial intermediaries are more willing to lend. Accompanying this increase in financial activity over time is an endogenous increase in the stock of money, in particular of transactions balances, like the monetary aggregate M1.

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[8] Money-demand equations often include a lagged dependent variable (that is, lagged money), which is commonly interpreted as a partial-adjustment mechanism. Therefore, although money supply adjusts very rapidly to accommodate changes in money demand according to this view, the adjustments to money demand in the face of monetary policy changes, for example, can take time — the effect of the partial-adjustment mechanism. The central point though is that there can never be a meaningful, sustained difference between money demand and money supply according to the passive-money view.

Initially, firms and households hold the additional money balances that arise because, from any individual point of view, the increases would seem to be ordinary fluctuations in the level of their money holdings. As well, the (temporary) decrease in short-term interest rates associated with the policy easing could encourage increased holdings of a monetary aggregate like M1. However, there is no reason to believe that, for any individual firm or household, any such increase in money demand would exactly match the increase in money balances held resulting from the increased financial activity.

Over time, firms and households variously perceive that their average transactions balances are persistently larger than they might desire at current prices. Over time they come to realize, again differentially, that this might not be a temporary condition. In other words, firms and households surmise that the additional money holdings are not part of some ordinary fluctuation in their money balances, and that the nominal quantity of money they hold corresponds to a real quantity that is larger than they desire at current prices.

However, the millions of individual firms and households do not simultaneously co-ordinate their individual actions to collectively dispose of the *aggregate* excess money. The effort by firms and individuals to separately dispose of their excess money holdings invariably involves transacting with one another, and in effect, passing on excess M1 in a myriad sequence of transactions. This process, in turn, has macroeconomic effects. The increase in expenditures associated with unwinding the excess money leads to an increase in nominal spending, an increase in economic activity and an increase in prices.

So the efforts to dispose of excess money take time, and continue until firms' and individuals' holdings of M1 again are consistent with their money-demand preferences. In particular, returning to monetary equilibrium occurs with a decline in the stock of real money balances, as prices rise, and as M1 balances are used to pay down debt or are converted to longer-term savings and other financial assets. This implies that excess money can lead to goods price inflation or asset price bubbles.[9]

A related interpretation of active-money relies on the fact that liquidity is unobservable, like the output gap. Changing interest rates only causes liquidity to move from one more-or-less arbitrary category of M to another, leaving excess liquidity intact. In this case, even supposing that a changed interest rate maintains equality between an outstanding monetary aggregate, like M1, and its estimated demand function, the interest-rate movement only causes some of the liquidity to change form, moving from M1 to M2. An excess would still exist, ultimately to be spent over time, and so raise prices to restore monetary equilibrium.

Clearly, in an active-money view, the effect of central bank action on financial terms and conditions (including interest rates) is critical, and liquidity expansion is endogenous, as in a passive-money view. However, the details of getting policy action through to output and prices are different from those in a passive-money view. In particular, the relative causality of the output gap and money are different in these two paradigms. As a result, the interpretation and importance of money expansion differs as well.[10]

Statistical tests are often seen as a way of clarifying the working of the transmission mechanism — of settling the question of causality. For example, there is an array of statistical results suggesting that, in some fundamental way “money matters” in the transmission of monetary policy.[11] However, empirical work on its own cannot settle such profoundly complicated questions about the relative causality of unobservable variables like liquidity and the output gap.

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[9] The active-money view is well-illustrated in the structural VAR analysis in Kasumovich (1996) for Canada, and in Fung and Kasumovich (1998) for other major industrial countries. Those papers provide evidence that, following a monetary policy shock, a money disequilibrium develops and persists, and is closed as prices adjust over a period of a few years. The models also produce dynamic responses of other macroeconomic variables consistent with the predictions of monetary theory. (Monetary policy shocks are interpreted in these models as those central bank actions that disturb the common trend between money and prices, but have no permanent impact on real variables — although the latter impact can be quite long lasting.)

[10] For more on the active-money view, and on the role of liquidity in the transmission mechanism more generally, see Laidler (1990, and especially 1997a). Other useful sources are Johnson (1962), Goodhart (1989), and Brunner and Meltzer (1993). As noted above, Kasumovich (1996) and Fung and Kasumovich (1998) provide structural-VAR analyses of the active-money view. In another context, the limited-participated, general-equilibrium model of Hendry and Zhang (1998) also includes an active role for money.

The point is *not* that empirical analysis is uninformative; on the contrary, this kind of work is indispensable. But empirical economics is often fragile, and it is designed and interpreted (legitimately and honestly) in the light of prior information and perspectives brought in by the researcher to get the work done. Indeed, the substantial uncertainty about the transmission mechanism summarized above would not exist if it were simply a matter of the objective application of definitive statistical procedures.

Indeed, data, applications and interpretations are all developed in the light of prior beliefs and extraneous information which condition how we answer the questions we ask, and even what questions we consider to be worth asking. (See Kuhn, 1970, for an influential presentation of this argument with reference to the development of science and knowledge more generally.)

Money is involved in the monetary transmission mechanism — this is virtually a tautology. However, whether it is also seen as causal seems largely a matter of interpretation and conjecture, and depends on what one believes about business-cycle dynamics, and about the nature of unobservable variables — about which we know relatively little.

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[11] For example, narrow money aggregates Granger-cause output, and a range of monetary aggregates Granger-cause inflation (Atta-Mensah, 1995). In Hendry’s VECM (1995), money disequilibria persist, and such disequilibria Granger-cause inflation. This model also forecasts inflation considerably better than the Phillips curve (Engert and Hendry, 1998). As well, the multivariate-filter measure of the output gap (described above) is not statistically significant in explaining CPI-inflation at any horizon in P*-type models that also include M1 and the M1-gap (Atta-Mensah, 1996). Finally, as pointed out in footnote 9, structural-VAR analysis suggests that money disequilibria persist and are closed slowly as prices adjust.

Views on the working of the transmission mechanism are built up from an array of tradition, intuition, methodological tastes, personal experience, theory (loose and rigorous) and empiricism (including casual observation). Fundamentally, though, there is a catch-22 here: To know about the transmission mechanism, we need to know unobservable variables (like those noted in Section 2), but to know unobservable variables, we need to know the transmission mechanism.

(c) Aesthetics and usefulness

Part of the extraneous information often used to condition analysis is an aesthetic preference for methodological simplicity, of economy of analysis. (We might call this an application of the maxim of Occam's razor.) For example, given a choice between explanations of phenomena that are observationally equivalent (that is, purport to explain equally well), there is a systematic preference for the simpler story. The additional intricacies and challenges of the more complicated view are seen as useless artifice — their costs are not justified by the benefits they seemingly provide, and so the more complex view is left aside and not pursued.

This helps explain the appeal of having one dominant view of the transmission mechanism. It helps explain the appeal of seeing money as passive and having all the real action come through the Phillips curve. From this perspective, one would naturally be sceptical about the complexity of the active-money view when one can make a simpler story seem to work, although the data must be synthesized to do so.[12]

Laidler (1997a) has argued that in order to understand monetary phenomena, we need to consider a relatively complicated perspective. More specifically, we need to focus on the role of monetary exchange as the means of coordinating the market choices of multiple, heterogeneous agents. This analytical approach is a sharp alternative to relying on the more conventional and simpler

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[12] Here, we certainly do not mean to set aside the research that has led thoughtful observers to discount and dismiss the active role of money.

Walrasian auctioneer to coordinate choices for a representative agent. Indeed, as a modelling or analytic strategy, the latter approach seems poorly suited for understanding monetary phenomena since it sets aside, a priori, the raison d'être of money—its role as a social institution that coordinates market exchange among numerous individuals and firms.[13]

Taking money seriously can be motivated by a different aesthetic than a taste for simplicity, one which owes more to contemporary philosophy on the nature of knowledge. (See again Kuhn, 1979, or Caputo, 1987.) In particular, we ought to take active money seriously because doing so allows us to take uncertainty (and complexity) more seriously. (Put differently, it allows us to take a more circumspect approach to truth.)

As well, taking active money seriously is likely to provide for a more fruitful approach to learning about the monetary transmission mechanism, and informing the policy debate, than not taking money seriously. In economics jargon, taking active money seriously has better dynamic operating characteristics. (In this way, we can see that the application of Occam's razor can lead to inferior results over time.)

Liquidity and the output gap are both abstractions that play central roles in stories about the monetary transmission mechanism. And each of these abstractions can lead to interpretations of the transmission mechanism, and to useful perspectives about the nature of the choices facing monetary policy. The traditional "either-or" question of whether it is money *or* the output gap that matters is counterproductive. There seems nothing to be gained, and something to be lost, by maintaining either limited perspective in isolation.[14]

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[13] In this regard, a promising analytical approach is to develop the role of financial intermediation and money in a general-equilibrium liquidity effects model, as noted in Hendry and Zhang (1998).

[14] For instance, the work cited in footnotes 9 and 11 has been motivated and sustained by a *prior* view that money is worth taking seriously in the transmission mechanism.

As suggested in Section 2, there is no reasonable basis to presume that a particular rendering of the transmission mechanism is correct or true. Indeed, consideration of the evidence suggests that our knowledge of the transmission mechanism is clouded by uncertainty. So, the objective must be to provide the most useful perspectives we can about the transmission of monetary policy in the context of such uncertainty. And that means taking the roles of both liquidity and the output gap seriously.[15]

4. Conclusions

Taking active money seriously is a response to uncertainty about the transmission mechanism. It also responds to the fact that central banking is fundamentally about monetary expansion, and that inflation is a monetary phenomenon. As a result, central bankers should approach the transmission mechanism, the outlook, as well as the development of policy advice from the vantage point of the two critical perspectives of liquidity (that is, its price and quantity dimensions), and of the output gap.

Taking an eclectic, more diversified approach to inform policy judgements is likely to produce better policy advice and therefore reduce the risk of policy errors. Clearly then, as a practical matter of developing monetary policy advice, taking active money seriously should not be seen as a substitute for the Phillips-curve view; it should be seen as a complement. That is, taking money seriously is a response to uncertainty about the transmission mechanism. Indeed, the more general proposition is not simply to take (active) money seriously, but to take uncertainty seriously, anchored by the goal of price stability.

A practical implication of this proposition is to develop a framework for monetary policy that accommodates “paradigm uncertainty” to inform decision-making. Not only should one consider uncertainty *within* a particular model (paradigm) of the transmission mechanism, like QPM, but one should also deal with the uncertainty of multiple paradigms — interpretations of what motivates economic behaviour. Ultimately, decisions could be informed by alternative paradigms each with their specific models of the transmission mechanism, such as QPM on the one hand, and on the other hand, a general-equilibrium liquidity-effects model.

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[15] The need to enhance the role of money in monetary policy was also raised at a recent C.D. Howe Institute conference; see Laidler (1997b), Grant (1997), Racette (1997) and Poloz (1997).

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