Uncertainty and Liquidity Preference

One of the most powerful and helpful images of economic slowdowns — offered to us by Mr. Keynes — is that during recessions people’s liquidity preference goes up: they want to stay liquid and flexible, to keep their options open. Why? Because recessions are typically associated with a lot of uncertainty.

1 The meaning of uncertainty

What do we mean by “uncertainty,” and how does “uncertainty” differ from “risk”? We can informally define a situation of uncertainty as follows:

\[
\text{uncertainty} \equiv \text{risk} + \text{the possibility of learning.}
\]

Thus, an uncertain situation does not just involve risk, but also the possibility of learning more about the situation if one waits receptively. It is the possibility and profitability of deferring decisions—waiting—until one has learned more about one’s situation that is the key to distinguishing uncertain situations from merely risky ones.

We begin with investor (alias firm) uncertainty, when firms are uncertain about the future profitability of their investment opportunities. Notice that situations involving uncertainty have, by definition, built-in dynamics. In a situation of uncertainty first one waits to learn; only after learning does one commit oneself to an irreversible decision.\(^1\) This is the key feature of uncertainty that we will utilize to explain the sharp decrease in Investment that typically happens during recessions, and why lenders’ Liquidity Preference increases when investors’ uncertainty increases. Note: Please be careful not to confuse “investors” (firms that borrow money to finance real investment projects) with “lenders” (people who lend money to investors).

2 An example of investor uncertainty

Before specifying the interaction between lenders and investors, it is useful to give an example of investor uncertainty, to help fix ideas.

Imagine it’s 1974. The OPEC oil cartel has just formed and quadrupled the price of oil. Investors however are unsure whether the cartel will last. If it does, it is more economical and efficient for investors to switch to energy-saving heavy capital equipment; but if it does not, it is more economical and efficient to continue buying oil-intensive equipment since oil prices will fall again.

Suppose investors believe that if the cartel lasts one year, it is highly probable it will last a long time; but if it collapses within a year, it will not appear again. So, they rationally wait to see if the cartel lasts, deferring new capital equipment orders for now. They do not want to be stuck with the wrong kind of capital equipment.

To complete the story, suppose the cartel does last the year. Then the economy’s pattern of aggregate investment may look like that in the Figure below. In 1975, investors begin to buy energy-saving equipment. But while uncertainty is high (during 1974) investors are just waiting to see if the cartel lasts, deferring irreversible investment commitments until they learn more about the cartel’s staying power.\(^2\)

![Figure 1: When investors’ uncertainty increases, their desired investment drops temporarily](image)

\(^1\) Or, more generally, a decision that is costly to reverse.

\(^2\) Indeed, there may be more investment for awhile after uncertainty clears.
The example illustrates the principle that when uncertainty is high, the desire for flexibility is high, where one situation is defined as more flexible than another if the former leaves more options open. The intuition behind the principle should be plain: if one expects to learn in the future, then one wants to remain flexible today in order to be in a position to profitably utilize one's learning. That is, one wants to keep one's options open today.

The example also illustrates the main consequence of the principle as far as investment in concerned: Since investment decisions typically are durable and irreversible, they typically involve a loss of flexibility. Hence, when investors' uncertainty is high, their demand for investment goods is temporarily low. As the example illustrates, it is important that you realistically think of investment decisions as involving choices among heterogeneous capital goods. Otherwise, the rationale for waiting will be lost. Summarizing schematically:

investors' uncertainty ↑ ⇒ their desire for flexibility ↑
 temporarily ⇒ their demand for investment goods ↓ temporarily.

But recall that uncertain situations—as opposed to merely risky ones—have built-in dynamics. Uncertainty does not stay high forever. Indeed, by the definition of uncertainty, economic agents expect uncertainty to get resolved in the future. Thus, when uncertainty is high, investment demand is only low temporarily—until uncertainty gets resolved. Let's trace out the implications of these dynamics for the level of long-term interest rates, r_LT, and lenders’ behavior.

3 The interaction between investors and lenders: Lenders’ liquidity preference is high when investors’ uncertainty is high

So far we have seen that the investment function and hence the IS curve will shift down when investors' uncertainty increases, but the IS will shift back up when investors’ uncertainty clears. Hence—for just about any shaped LM you can draw—r_LT will fall when investors’ uncertainty is high and go back up when uncertainty clears. In Figure 2 below, I have illustrated the pattern using a classical LM.

![Diagram](image)

Figure 2: r_LT↓ a lot when uncertainty ↑, and r_LT↑ again when uncertainty clears. Is this rational?

But this shape LM is not rational for lenders! Lenders—putting themselves into firms' shoes,—will rationally anticipate the above pattern for the long rate induced by uncertainty’s waxing and waning; that is, lenders will rationally expect r_LT to increase in the future if the present is marked by a lot of uncertainty. Hence lenders will rationally have inelastic interest rate expectations when they see investors’ uncertainty is high today, expecting capital losses if they lend long-term today. This
leads to a floor, an $r_{\text{min}}$ below which lenders will not lend long-term this year, as illustrated in Figure 3. The figure is drawn assuming $r_{LT} = 5\%$ and there is a liquidity trap with $r_{ST} = 0$ when uncertainty is high.

\begin{figure}
\centering
\includegraphics[width=0.5\textwidth]{figure3}
\caption{This LM is rational: Lenders are unwilling to lend below 4.8% when investors' uncertainty is high}
\end{figure}

Schematically:

investors' uncertainty $\uparrow \Rightarrow r_{LT} \downarrow$ temporarily, until investors' uncertainty clears up $\Rightarrow$ some lenders prefer to be liquid (into money or short-term lending) rather than be illiquid (into long-term lending) when investors' uncertainty is high.

In particular, when investors' uncertainty is high and the economy finds itself in a liquidity trap, lenders will be holding some Keynesian speculative balances in their portfolios.

4 Lenders' uncertainty

In the above example, lenders believed that the drop in investment opportunities was temporary, that the long rate would return to 5% when investors’ uncertainty cleared. But typically when lenders see the long rate go down because of a fall in firms’ demand for borrowing, they will not be sure whether investment opportunities have only fallen temporarily. Indeed, they may find themselves in a situation of uncertainty about this: by waiting awhile they may get a better idea whether the drop in investment opportunities was indeed temporary or permanent. In this case, analogous to the OPEC example, lenders will prefer to stay liquid today rather than granting long-term loans at a very low interest rate, revising their interest rate expectations downward only slowly if they see the long rate not rebounding. Thus a recession can occur even in the absence of any firm uncertainty: firms may know that the fall in their investment opportunities is permanent, but lenders may not know this because they are less informed about firms’ investment opportunities, hence they refuse to let the long rate fall rapidly enough to avoid a temporary recession after a permanent fall in investment opportunities.

5 Why is the demand for consumer durables also very volatile?: Household uncertainty

Recall that investment goods and consumer durables are the two most volatile components of spending, both dropping a lot during recessions. We can use the idea of uncertainty to also explain why expenditures on consumer durables are very volatile. (If one thinks of purchases of consumer durables as investment by households, it should come as no surprise that the theory of uncertainty turns out to be helpful in this regard.)

In recessions, households become increasingly uncertain about their future income flows: Even if one isn’t laid off, there is increased fear that one may be laid off. Because consumer durables are illiquid, it is more costly to correct what turns out to be an over-purchase than an under-purchase. Hence, purchasing new consumer durables reduces one’s flexibility at a time when one wants to keep one’s options open. The consequence is that dur-
when uncertainty ↑

6 Putting it together: The two senses in which liquidity preference goes up during recessions

Summarizing, during recessions there typically are at least three groups suffering uncertainty, namely, (a) investor uncertainty: firms are uncertain about the future profitability of investment projects, (b) lender uncertainty: lenders are uncertain about the future long rate \( r_{LT}^{e} \), and (c) household uncertainty: households are uncertain about their future jobs and hence future incomes.

These uncertainties give rise to an increase in Liquidity Preference (LP) in two senses, in real terms and also in financial terms. Further, these two senses in which LP goes up are interrelated. In particular, (a) investor uncertainty: we have seen that when firms’ uncertainty about investment projects ↑, their LP↑, which leads them to invest less (a real way to increase their flexibility). I illustrate the idea below by drawing a “liquidity spectrum” in which I array all real assets from the most liquid to the least liquid; notice raw materials (idle resources) are more liquid than hard stuff like machines because using raw materials you can make this machine or that one, as you like. When uncertainty ↑ more real resources are held idle rather than committed to one particular use, increasing their flexibility. (I include consumer durables anticipating the discussion in (c) below.)

At the same time, lenders’ LP also ↑ since they want to wait till firms’ uncertainty clears before committing to long-term loans; lenders’ increased LP takes on a financial rather than real expression: they temporarily prefer to hold speculative balances or engage only in short-term lending (a financial way to keep their options open). The idea is illustrated graphically below: I draw another liquidity spectrum in which I array all financial assets from the most liquid (i.e., money) to the least liquid; when uncertainty ↑ people move toward holding more liquid assets to keep their options open.

Similarly, (b) lender uncertainty: when lenders become more uncertain about the future long rate, they temporarily prefer to hold liquid financial assets in their portfolios rather than grant long-term loans today at a sufficiently low interest rate to avoid a recession, waiting until their uncertainty about the future course of the long rate clears. As our final illustration of the two (interrelated) senses of “liquidity preference”, (c) household uncertainty: when households’ uncertainty about their future incomes ↑, their LP↑, which leads them to want to hold more liquid financial assets (e.g., more money in their savings accounts as precautionary balances)—a financial expression of their increased LP,—and consequently households buy less consumer durables.
to build up their savings accounts instead—a real expression of their increased LP. In this case idle resources will take the form of unemployed labor in industries producing consumer durables because there just is not enough demand to put them all to work.

Represented visually as a variation on our logo: