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Unconventional Monetary Policy or Automatic Stabilizers? A Financial Post-Keynesian Comparison

by

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ABSTRACT

The purpose of public policy, expansionary or contractionary, is to encourage the expansion of income, output, and employment. Theory decides the nature and kind of policy, and the underlying mechanics that result in expansion. Keynes (1964) brings money and a monetary production economy to the forefront of economic analysis, yet in the *General Theory*, he is skeptical of the efficacy of monetary policy. This paper analyzes how prices of assets, liabilities, and commodities interact in response to unconventional monetary policy and fiscal policy (namely automatic stabilizers) to create conditions that stimulate private investment and economic activity. Modern economics, after accepting the need for intervention, tends to attempt to use monetary policy to steer aggregate demand. "Unconventional" monetary policy such as zero and negative interest rates, and quantitative easing have been instituted in an attempt to fight slumps and stimulate economic activity without increasing government deficits. In this paper, we point out—using Davidson's (1972) financial post-Keynesian framework—how unconventional monetary policy is not sufficient to create the conditions of backwardation that stimulate production. Finally, we explain how automatic stabilizers, using the Kalecki profits (price) equation, are the best avenue to create the conditions for backwardation that stimulate economic activity. We conclude, like Keynes, that fiscal policy is the reliable path to economic expansion.

KEYWORDS: Financial post-Keynesian Theory; Unconventional Monetary Policy; Quantitative Easing; Automatic Stabilizers; backwardation; Contango; Tobin's Q; Paul Davidson

JEL CLASSIFICATIONS: E12; E44; H50; E52; E62

1 INTRODUCTION

In the last decade, the Bank of Japan, the US Federal Reserve post-global financial crisis, and several other central banks have used "unconventional" monetary policy extensively (Kregel 2014a). Unconventional monetary policy attempts to stimulate economic activity during recessions and price deflationary periods by keeping interest rates low, at zero, or even negative and setting a floor to financial asset prices by being a buyer of last resort (yield control and quantitative easing). The mainstream perceives monetary policy to be the least intrusive form of government intervention. This belief is founded on myths such as arbitrary limits on the government deficit, the existence of crowding-out effects of the government deficit, and an independence between monetary policy and the government deficit (Wray 2012; Tcherneva and Tymoigne 2023).

Along post-Keynesian lines, we argue that monetary policy, on its own, need not have a significant impact on the stimulation of economic activity. The decision to invest is determined by several complex factors other than money supply and the terms on borrowing. In this paper, we expose and unveil the conventional nature of the thought and justification that backs the use of unconventional monetary policy. This exposition will involve the application of a Minskyan and Davidsonian analysis of the nature of prices in a capitalist economy, and the Keynesian idea of liquidity preference as a theory of prices (Davidson 1972; Minsky 2008b; Keynes 1964; Kregel 1982).

Using a financial post-Keynesian framework, we will try to understand why unconventional policy is unlikely to work. Central to the analysis will be Keynes' concept of the "veil of money" which suggests that money values and physical productivity typically move independently of each other. Kregel (1992) suggests that there are two degrees of separation between monetary policy and commodity prices. Monetary policy must first affect the prices of liabilities which have to affect the prices of assets (and the investment decision) which finally have to affect the

prices of commodities.[1] Thus, monetary policy can be thought of as a top-down approach to influencing the production (investment) decision, with causation running from liability and asset prices to commodity prices. We will instead make a case for fiscal policy and, more specifically, for automatic stabilizers. We will demonstrate how fiscal policy is more effective in anchoring the prices of commodities at a desirable level, which in turn brings stability to asset and liability prices. We can think of fiscal policy as a bottom-up approach to influencing the production decision and bringing financial stability.

In the second section, we will introduce the plumbing and operation of unconventional monetary policy, i.e., zero-interest-rate policy and quantitative easing. In the third section, we will analyze the mechanism through which unconventional monetary policy is expected to stimulate economic activity. This will allow us to explain how these narratives overlook Keynes' "veil of money," failing to distinguish between liability, asset, and commodity prices. The theories we will challenge include monetarism, Keynes' work in the *Treatise*, Tobin's q, and the investment-interest rate nexus. In the fourth section, we will undertake a financial post-Keynesian analysis of unconventional monetary policy. This section will employ the backwardation-contango approach to investment (Davidson 1972). In the process, we also make some Minskyan and financial Keynesian amendments to the backwardation-contango framework, as we believe that Davidson's (1972) perception of "flow-supply price" is inadequate. The final section will use Kalecki's equation to explain how fiscal policy and automatic stabilizers anchor prices and anchor confidence that prices will remain at desirable levels and allow for financial stability. The concluding remarks in this section will make clear how fiscal policy is the better tool to stimulate economic activity and prevent financial instability. Unconventional monetary policy is, at best, a solution to anchor liability prices during a crisis. It need not be the solution to deficient effective demand and low levels of output and employment. Throughout the paper we distinguish between the forces of determination of liability, asset, and commodity prices. From an aggregate and macroeconomic perspective, commodity prices are determined using the Kalecki price–profit equation. (Capital) Asset prices are determined as Minsky (1975) explains in his financial theory

[1] Liability prices refer to financial assets which are both assets and liabilities on the aggregate. Asset prices refer to physical capital assets which are only asset entries on aggregated and individual balance sheets. The terminology follows Kregel (1992).

of investment, through a net-present value calculation of expected explicit and implicit cash flows. Liability prices are much more complex and volatile and have institutional and ceremonial determinants. Since the determinants for the prices of each of these are different, there is no reason to believe that prices of liabilities, assets, and commodities will move concomitantly.

2 MECHANICS OF UNCONVENTIONAL MONETARY POLICY

There is little doubt in academic economics today that the nominal overnight interest rate is exogenously set by central banks. It is not money supply that is considered exogenously controlled, as thought by Friedman in the 80s. The central bank acts as a lender of last resort, using bonds to drain or add additional central bank liabilities (reserves) into the commercial banking system to ensure inter-bank payments and reserve requirements do not fail, and interest rate targets are met (Tymoigne 2016). If there is an aggregate demand for a net injection of reserves into the commercial banking system, the central bank purchases government treasuries or lends in the discount window to meet this demand. This prevents the overnight rate from going up (Tymoigne 2016). If there is an excess aggregate supply of reserves in the commercial banking system, the central bank mops up these reserves by selling treasuries and thus preventing the overnight from falling.

Quantitative easing (QE) refers to the central bank deliberately expanding the size of its balance sheet by acquiring the assets of commercial banks in exchange for reserves (Sheard 2014). The central bank does this to satisfy the liquidity preference of commercial banks (and other financial institutions), thus preventing an excess supply of the commercial banks' assets on the market, and arresting a potential asset price deflation triggered by attempted asset sales and balance sheet restructuring. Under the current structure, the central bank announces the number of particular securities purchases and sets a target for the size of its balance sheet (Kregel 2014a). This action causes the assets of the central bank (what was purchased from the commercial banks) and the

liabilities of the central bank (reserves paid in exchange for these assets) to rise concomitantly to increase the size of the central bank's balance sheet.[2]

However, after quantitative easing, which resulted in a permanent excess supply of reserves in the banking system, the central bank moved to a new technique of maintaining interest rates: the corridor system (Tymoigne 2016). If a new system of interest-rate setting were not adopted, excess reserves would result in interest rates being biased toward zero. In the new corridor system, the ceiling and the floor of the overnight rate are set by the central bank paying interest on the holding of its liabilities (reserves) and the ceiling is set by the discount window, where the central bank acts as a lender of last resort. Thus, if interest rates in the inter-bank reserves lending market were above the corridor, commercial banks would borrow from the central bank instead of peer institutions. If the inter-bank reserves lending rate were below the corridor, commercial banks could deposit their reserves at the commercial banks instead of lending them out. These arbitrage-powered restrictions keep interest rates within bounds set by the central bank. Treasury bonds are used to control the movement of the interest rate within the bounds created by the ceiling and floor of the corridor. This allows the central bank the additional degree of freedom to set interest rates and manage the size of its balance sheet without compromising the setting of interest rates.

In this context, Sheard (2014) explains that pushing for a negative interest rate would be contradictory. This is because the aforementioned floor in this case would have to be negative, which implies that the interest on reserves held by commercial banks would have to be negative. This means that the commercial banks would have to pay a premium to the central bank to hold these reserves which were acquired as a consequence of quantitative easing.

In the next two sections, we will explain how different theories expect quantitative easing to stimulate economic activity. The general problem that motivates the use of quantitative easing occurs when prices are on a deflationary trend and the level of economic activity is low. Since price stability is the mandate of the central bank, the central bank needs to ensure that prices do

[2] The accounting equations provided by Sheard (2014) give a clear guide to understanding this mechanism.

not fall too far below or above the target. The problem with deflation is that falling prices discourage future production. The more serious problem posed by commodity-price deflation according to Minsky (2008b) is that it increases the debt burden of firms. If prices fall concomitantly with income, then the revenue of firms fall, which hinders their ability to meet cash commitments. This results in systemic macroeconomic financial fragility if we view the economy as a series of interconnected balance sheets as Minsky (2008a) does. Since the liabilities of one unit are the assets of another, failure of one to meet cash commitments results in the failure of other units to meet cash commitments, and the economy cascades into a financial crisis and recession (Minsky 2008b). What QE tries to do is to inflate (or maintain) liability, asset, and commodity prices so that validation of debt can ensue, and debt deflation and a full-blown financial crisis can be prevented. What we will argue in the fourth section is that the link between QE and prices of investment and consumer goods is weak and thus QE is, at best, fixing symptoms and not causes (Ryan-Collins 2023). The conventional logic either does not see the degrees of separation ("veil of money") between monetary policy and commodity prices (monetarism) or conflates the intermediate degrees of separation, liability and asset prices (orthodox Keynesians).

3 REVIEWING THE CONVENTIONAL LOGIC BEHIND UNCONVENTIONAL MONETARY POLICY

3.1 Naive Monetarism: Money Supply and Prices

As explained above, QE results in an injection of central bank reserves into commercial bank balance sheets. Central bank reserves are accounted for as a rise in the monetary base and monetary aggregates, thus constituting a rise in the money supply. Applying this scenario to the quantity theory equation of money as used by Friedman ($MV = PY$), we see that the rise in money supply, given a velocity of circulation, results in either a rise in prices (in the long run) and/or a rise in production (in the short run), thus stimulating the economy and raising the price level—meaning that the problem of unemployment and price deflation can be dealt with simultaneously. However, the quantity theory of money contains several unreasonable assumptions and is, intrinsically, fallacious on the grounds that it is not stock-flow consistent (Mitchell et al. 2019). This is because the velocity of circulation compares a stock (the money

supply) with a flow (GDP; i.e., price times output). Theoretically, reserves which are only circulated amongst central banks, the treasuries, and commercial banks cannot be used to make payments or stimulate economic activity in the private sector unless the private sector makes a decision to spend (Sheard 2014). A slightly more convoluted and financial version of this is explaining the fall in return on money caused by the reduction in its scarcity, the flip-side of which is a rise in the prices of physical capital, which incentivizes individuals to reallocate their portfolios and switch from money to physical capital—thus stimulating economic activity. In other words, increasing the quantity of savings which in turn reduces the interest rate and thus stimulates investment.

As Sheard (2014) repeatedly states, excess reserves cannot be lent out by commercial banks, because reserves are of no use to the private sector, and do not constitute savings. Excess reserves only alter the balance sheet structure of commercial banks and not necessarily their size, since QE is only a swap between reserves and some other assets of the commercial bank. Thus, it does not practically constitute a rise in the money supply and will not have the aforementioned effects.

This logic is completely oblivious to the "veil of money." The theory presumes that monetary policy, through the money supply, directly affects commodity prices. The higher the money supply, the higher the prices of commodities. There is little or no consideration for (financial) liability and (physical) asset prices. There is no distinction made between the nature of price determination of liabilities, assets or commodities.

3.2 Baby Steps: Orthodox Keynesian Transmission

3.2.1 Keynes' Treatise

This section explores the logic that (orthodox) Keynesians use to justify the use of unconventional monetary policy. Keynesians usually employ a more sophisticated financial framework, and acknowledge that interest rates are the policy variables rather than monetary aggregates. They also acknowledge that liability/asset prices are an intermediate between the monetary policy and commodity prices but are oblivious to Keynes' (1964) financial theory of investment or Minsky's (2008b) financial fragility. They, however, conflate (financial) liabilities

and (physical) assets, and thus fail to acknowledge the importance of liquidity to the level of economic activity (Kregel 1992).

Kregel (2011) points out that unconventional monetary policy can be traced back to Keynes (1978) who called for *extraordinary and unorthodox* measures from central bankers to counter the recession and deflation of 1929. In the *Treatise*, Keynes (1978) believed that the price level of output was dependent on something very similar to the Kalecki equation. The price level was a function of money wages relative to productivity, the volume of investment, and the bullish/bearish sentiment of capitalists relative to the willingness of financial institutions to issue their liabilities. Keynes (1978) already had a two-price system at this point, with the price of current output being governed primarily by the ratio between money wages and productivity and the price of assets (capital goods) being governed by the balance between investment and savings—which is a function of the volume of investment, the bullish/bearish sentiment of capitalists, and the willingness of institutions to accommodate these sentiments (Kregel 1992). At this stage, Keynes also conflated asset and liability prices because there was no analytical separation between the prices of securities and those of capital assets.

Before Keynes made the monetary revolution in the *General Theory*, he believed that the banking system had control over the supply of savings deposits, and investment through changes in the terms of credit, which, in turn, changed the ratio of money wages to productivity (indirectly through the spending of capitalists) (Kregel 2011). This is where Keynes suggested the use of something similar to quantitative easing, so the central bank could have more control over loan lending rates through yield control (Kregel 2011). Note that we see the acknowledgement of one degree of separation between monetary policy and commodity prices (via asset prices) here.

Thus, quantitative easing and low or negative interest rates could perform the functions of raising prices and economic activity within this framework. Changes in the interest rate, by changing the composition of portfolios, changed the balance between investment and savings. A reduction in the interest rate made financial assets such as bank deposits less attractive. This implied that savings reduced, relative to investment, thus causing prices of capital assets to rise and resulting

in the emergence of windfall profit. This, in turn, stimulates production, output, and employment. Alternatively when interest rates are raised and savings rise relative to investment, the prices of capital assets fall, windfall losses are accrued, production is scaled downwards. Note, however, that even this approach, while inconsistent with modern money, still rejected the quantity theory of money. The relationship between the prices of output and the supply of money was determined through the investment decision and not the quantity theory equation, which was explained to be a special case of Keynes' (1978) fundamental price equations (Kregel 1985), thus giving it the aforementioned one degree of separation. As mentioned previously, it was the volume of investment, the bullish/bearish sentiment of capitalists and the willingness of institutions to accommodate these sentiments that determined the money supply and not a central authority. However, this framework neglected the role of expectations and uncertainty (regarding future cash flows) in the determination of prices of capital goods and windfall profits.

Kregel (2011) points out that even in the *Treatise,* Keynes (1978) was careful to mandate the central bank with the task of maintaining investment rather than price stability. This policy, regarding the role of interest rates and yield control, conclusion was one of the many amendments Keynes made in the *General Theory*, where he presented fiscal policy as the only certain solution.

3.2.2 Orthodox Keynesians

Orthodox financial Keynesians emphasize the role of QE and low interest rates in arresting or increasing the price of financial assets and aiding in yield control, which refers to managing interest rates across the entire terms structure. Both of these measures reduce the cost of borrowing to finance or fund investment, and are thus postulated to stimulate investment. Textbook Keynesians' inverse relation between the interest rate and investment and Tobin's Q are the frameworks that support this argument. There are two steps to understanding these arguments. First, the effect of QE and lower interest rates on asset prices and the term structure of interest rates, followed by the effect of the change in asset prices on economic activity. These thinkers also conflate liability and asset prices and neglect the role of uncertainty.

The postulates of the first step are less problematic. This postulate proposes that a reduction in the risk-free rate of return results in some individuals reallocating their portfolios toward less liquid and more risky assets, as they pay a relatively higher return. This results in an excess demand for these longer-term, less liquid, and more risky assets which, in turn, implies a rise in their prices, and thus a fall in their interest rates. Thus, a fall in the short-term interest rate is likely to result in a fall in interest rates across the term structure (longer-term interest rates). While Keynes admitted that it is not certain, he believed it was likely that the term structure of interest rates would follow that of the short-term interest rates (Kregel 2011; Simoski 2019). This would happen for two reasons. First, if the running yield on bonds is greater than the terms of borrowing, there is an incentive to make an arbitrage on the carry. The important caveat for this postulate to hold is that interest rates do not rise by enough to result in capital losses that are greater than the rise in interest payments (the square rule). This caveat becomes more important with lower rates and the nature of this caveat is emphasized by Kahn (1954) and Kregel (2014b). Thus making this caveat more important in the context of a low interest rate regime. The second reason for the term structure following the short-term rates is that when short-term yields are low, financial institutions will struggle to meet their cash commitments on their longer-term liabilities, thus forcing them into buying longer-term assets. Contemporary financial heterodox economists like Ryan-Collins (2023) also empirically validate these claims.

The postulates of the second channel are problematic. This is, in fact, the more important step, since the first step of raising financial asset prices and reducing the term structure of interest rates was a means to the end of stimulating higher economic activity. The relationship between asset prices, interest rates, and investment is questionable. This is because assets are heterogeneous, and the rise in asset prices, as explained in the above paragraph are likely to constrain themselves to financial assets, and not make their way to stimulating the creation of capital assets. The two theories this paragraph dissects are the orthodox Keynesian postulate of an inverse relationship between interest rates and investment and the Tobin's q which postulates a positive relationship between investment and financial asset (equity) prices.

The Keynesian investment-interest rate nexus is questionable on several grounds. Fazzari (1993) decomposes the determinants of the investment decision into three of these grounds: the cost of

capital, the output and sales variables, and the firm's access to finance. The first is the channel through which interest rates impact investment, the other two channels are dependent on expected profitability, and the balance sheet structure of units—both of which are dependent on effective demand and liquidity preference. A lower interest rate is presumed to stimulate the investment decision by reducing the cost of capital and increasing the present discounted value of capital. However, the phenomena of overcapitalization implies that firms are less reliant on external finance to make investments, thus making their decisions less dependent on interest rates (Toporowski 2002). Fazzari (1993) also points out empirically, that changes in interest rates have a negligible impact on the investment decision. He argues that the investment decision depends more on future profitability and less on the cost of the capital channel, which is consistent with the work of Kalecki and Keynes. The use of the Fazzari decomposition makes the two degrees of separation apparent, with interest rates and quantitative easing affecting liability prices through the firm's access to the credit channel and affecting the prices of assets through the cost of capital and expected profitability channel.

The Tobin Q refers to the quotient between the market price of a firm's shares (equity) and the replacement cost of (fixed) capital assets. Tobin postulates that the Q tends toward one. If the Q is higher than one, then investment increases the replacement cost of capital assets and the opposite if the Q is less than one. The logic behind this is that if the value of capital is lower than the value of equity, the firm can borrow to invest and float off shares for immediate profits (Medlen 2003). Thus, almost making investment an arbitrage opportunity. Investment through the increasing cost assumption of marginalist economics causes the replacement cost to rise and the increase in supply of shares reduces the price of shares as well, thus making the Q tend toward one. Toporowski (2002), however, points out that shares are the assets of the buyers and not the firms, thus implying that capital gains are not on the balance sheet of issuers but the buyers of shares. Thus, the liquidity is with the capital market and not firms. For firms to access finance so that the Q tends toward one, they have to use external funds, which has implications on the balance sheet structure and thus the investment decision, which Tobin overlooks.

Toporowski (2002) also explains that rising capital market valuations of equity are more likely to result in a situation of overcapitalization rather than investment.[3] The ability to command liquid resources need not be constructively and productively used to invest, It is more likely that it would be used to acquire the liabilities of other private sector entities, thus creating a vicious cycle of rising financial asset prices, what Toporowski (2002) calls capital market inflation. Rising liability prices tend to confine gains to the financial sphere. An emphasis on money manager capitalism (i.e., maximizing net worth, and equity prices) results in non-financial firms chasing those assets that provide short-term capital gains rather than steady long-term returns (Tymoigne and Wray 2014). This is yet another reason to believe that the ownership and creation of financial assets would dominate physical capital assets, when the Tobin Q is greater than one. Medlen (2003) even illustrates empirically that the Tobin Q does not operate as suggested above. As cited by Kregel (2011), Keynes stated:

> [o]n the other hand, the direct effects of cheap money operating through changes, even small ones, in the bond market ... on the volume of new investment is probably of more importance. Willingness to invest more or less in manufacturing plant is not likely to be very sensitive to small changes in bond rate." (Keynes 1930, 364)

The critiques of the second step suggest that unconventional monetary policy is directed at the wrong determinant of investment. It exclusively focuses on (financial) liability prices and conflates (financial) liability and (capital) asset prices, overlooking the conflict between the two and overlooking the separate price determination mechanisms each are subject to. The central bank can make the act of investment as cheap and as convenient as possible but ultimately there has to be a desire to invest. This desire to invest cannot be forced onto investors from the supply side by making capital cheap and plentiful. The concomitant movement of prices of liabilities and assets cannot be taken for granted, and the decision to invest and the movement of prices—of both liabilities and assets—are more complex than portrayed by these theories. Once again, like the previous section's exposition of the *Treatise*, we see that uncertainty and the motives to liquidity are overlooked.

[3] Overcapitalization refers to the accumulation of financial assets on the balance sheets of non-financial firms due to their heightened ability to call forth liquid resources (retained earnings) through operations and liability issues.

4 UNCONVENTIONAL THEORY AND UNCONVENTIONAL MONETARY POLICY

4.1 Theoretical Background

We have to recall that the ultimate goal of unconventional monetary policy is to increase the price of output and induce inflation, so that the burden of debt of economic units reduces and investment and a rise in economic activity ensue. This section will attempt to analyze the changes in prices of a capitalist economy using the frameworks of Minsky (2008b) and Davidson (1972),[4] to evaluate how well an unconventional monetary policy would function.[5] More specifically, we evaluate how unconventional monetary policy could worsen the contango[6] rather than resulting in backwardation,[7] the condition required to stimulate the economy. In this section and framework, we explicitly distinguish between liability and asset prices by accounting for the implicit returns. The forward price can be thought of as the price of assets and the spot price can be thought of as the price of commodities. The flow supply price considers the effect of liability prices on the decision to produce through its incorporation of implicit returns. Thus, we capture the "veil of money," accounting for the prices of commodities, liabilities, and assets separately. Between each step (i.e., monetary policy to liability price, liability price to asset price, asset price to commodity price), there is always a possibility of 'a slip between the lip and cup' as Keynes would say, thus leading him to see monetary policy as an unreliable tool for the stimulation of economic activity.

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[4] Throughout this section, I take the liberty to refine Davidson's (1972) concept of the flow-supply price to update it with crucial concepts from Minsky and Keynes.

[5] We mostly use Davidson (1972), but show the Minsky (2008b) connection since both frameworks focus on the notion of implicit returns from liquidity.

[6] Contango is defined as a situation in which the forward price is higher than the spot price. An increase in the divergence between the forward and the flow-supply prices, with the former being lesser than the latter and the spot price, worsens the contango.

[7] Backwardation is defined as a situation where spot prices are higher than forward prices. In a backwardation, flow-supply price and the forward price are equal at a level lower than the spot price.

[8] Minsky (2008b) referred to prices hitting this benchmark price as the "coherence condition."

The first thing that policy must ensure is that firms will be able to charge a high enough price to allow them to realize a revenue that exceeds their costs, especially their future cash commitments on debt. It is also important to acknowledge that prices and revenues must be sufficient to accommodate some level of profit that offsets the implicit return on liquidity (the liquidity premium), inducing production rather than ownership of existing capital assets or financial assets. We can call this benchmark the "flow-supply price" [8] (Davidson 1972). The second thing that policy must also provide is confidence that this outcome of a sufficient price will persist over time, since investment in physical capital and the production process is a commitment through variable quantities of time. Thus, we need to ensure that the market prices, spot forward, and future expected spot prices persistently exceed the cost of production, i.e., the flow supply price—to make production financially feasible. Note however, that this is only a necessary and not sufficient condition for production. To understand the decision to produce more deeply, we need to delve into the specific relations between the spot and the forward prices.

Davidson (1972) describes the spot price (p_s) as the market price of the stock of inventories or capital inherited from past periods. He describes the forward prices (p_f) as that price which adjusts production (flow-supply) such that it is equal to the flow-supply price (defined above). In this case, we can think of the forward price as the intersection between the demand and supply price in Minsky (2008b). Davidson (1972), however, points out two caveats during which the forward price need not equal the flow-supply price (p_{fs})[8]: (1) the production process is longer than the time until the future contract date and (2) when there is such a high accumulation of stocks (inventories) that there is no need to produce. It is the second problem that we should worry about since it falls under the realm of economics—thus we ignore the first problem. Figuring out this second condition is what we need to better understand what induces the decision to produce—which creates output, income, and employment which allow the future validation of debt. So far we know that the decision to produce must fulfill two conditions: (1) that the spot and forward prices equal or exceed the flow-supply price and (2) the existence of

[8] If the forward price does not equal the flow-supply price then it equals the expected future spot price.

stocks and inventories do not discourage further production and that the forward price equals the flow-supply price.

Assuming that the forward and the flow-supply price coincide—as long as the spot price exceeds these prices—production ensues. This is called backwardation. In this situation, the existing stock and inventories accumulated from previous periods are not sufficient to meet demand, thus necessitating a flow supply or new production. Thus, investment will be positive, prices rise and the economy will expand. In this case, producers can confidently begin production after signing a contract at today's prices which cover the flow-supply price. The rising spot price implies that circulation and consumption of inventories calls forth new production, and this new production can be carried out with sufficient profit. This is where we want a growing economy to be.

In a situation where the existence of excess stocks and inventories are present such that the forward prices are less than the flow supply price and the spot price, we have an investment, production, and stagnation problem.[9] Unlike in the marginalist case, prices do not adjust infinitely such that excess supply is solved. Instead, we have a time and inter-temporal dimension to excess supply. Excess supply has to either wait for the demand to absorb it over time or slowly depreciate and become obsolete. Thus, inventories and stock have to be run down over time, and as long as this running down process is taking place, new (net) investment will not be forthcoming and the economy will stagnate or contract. In this case, where the forward price diverges from the flow-supply price, and is lower than the spot price, the forward price is determined by the future expected spot price (p^e_s). Thus, in the general case, we can think of the forward price being Minsky (2008b)'s demand price, i.e., the probability weighted capitalized value of expected future inflows ($p_{mos}\mu\Sigma Q$)[10]. The demand price and expected future spot price can be thought of as analogous.

[9] There is no need to distinguish between the two different contango-scenarios provided by Davidson (1972) since, in my judgment, it will not add to the present analysis. Refer to a forthcoming piece on the Monetary Policy Institute Blog to understand how this distinction can be used to understand pandemic inflation.

[10] Where p_{mos} is the probability weight that signifies the certainty of expected quasi-rents, μ is the capitalization factor which is the reciprocal of the money rate of interest ($1/r_m$), and Q is the expected quasi-rent.

Since negative uncertainty is likely to cause people to refer to recent experiences, it is likely that they would expect spot prices to keep declining which would increase the difference between the forward and flow-supply price further, thus creating more slack, stagnation, and contraction. Recall that, to induce investment, not only should the expectation of the future spot exceed the current spot, the capitalist should believe that this condition will persist over time. This is because investment is a commitment that lasts over time, and it is not only today's consideration, we have to keep in mind, but also the considerations through the life of the investment.

When we are in a state of contango, and policy is trying to battle stagnation and decline, the factors that need to be addressed are the forward price (or expected future spot), spot price and flow-supply price. As stated above, unconventional monetary policy attempts to reduce the flow-supply price by reducing the cost of borrowing (reducing the interest rate) and increasing the expectations of future prices by augmenting the money supply. As Davidson (1972) notes, the understanding of the flow-supply price by the marginalists and non-financial economists is too simplistic and non-financial. The flow-supply price includes both explicit and implicit costs, and not just explicit physical costs as the marginalists insist. The former includes input costs, financial commitments, and so on. The latter is the liquidity premium, margins of safety, the user cost of capital, and the extra surplus that motivates the capitalist to invest in that particular physical capital rather than other physical capital or financial assets. Understanding the implicit returns is extremely complicated and always overlooked by conventional thought. When QE and zero (or negative) interest rates are set, the conventional thinkers only consider the impact on the explicit costs and the net-present value calculation. However, as explained in the previous section, unconventional monetary policy could have undesired effects on future spot and forward prices, and the implicit returns. Thus, failing to do its duty of increasing the forward and flow supply price such that stocks are no longer redundant, we are in a situation of backwardation, and net investment is forthcoming.

4.2 Impact of Unconventional Monetary Policy

Let us first assume the economy is in a contango, where forward prices equal expected future spot prices which are lower than the flow-supply price (Davidson 1972). In this case, the decision to produce is discouraged by the fact that producers can only sell their output for a price

less than their explicit and implicit costs. Let us presume that the government reduces interest rates and engages in quantitative easing to try to bring the economy out of a contango, into a backwardation—where spots exceed the forward which equals the flow-supply price—to stimulate economic activity. When interest rates are reduced, it is possible (but we cannot take for granted) that the cost of investment falls by successfully transmitting the pressure to the entire term structure of interest rates. This assumes that the 'square rule' does not result in expectations of capital gains outweighing the fall in interest inflows thus making portfolios content to hold liquid assets instead of selling them and looking for assets that yield higher returns (Kahn 1954; Kregel 2014b; Simoski 2019). The square rule is the first obstacle that unconventional monetary policy has to overcome.[11] The fall in interest rates also creates expectations for the interest rate to fall further, thus making capitalists wait for future falls in interest rate before investing. This is because the higher cost capital today would have to compete with the lower cost capital of tomorrow if interest rates were to furthur fall (Kregel 2014b). This results in a decrease in the future-expected spot price and the forward, making the contango worse.

We also explained in the previous section that a fall in interest rates makes other financial assets more attractive, thus the implicit return (liquidity premium) or the user cost of capital may rise such that production is not induced. If this is the case wealth and borrowing ability is used to purchase riskier financial assets instead of production. This would cause the flow-supply price to rise, resulting in a larger divergence between the flow-supply price and the forward price (or, expected future spot price), thus worsening the contango situation. For these reasons, there is no reason to believe that the decrease in the cost of borrowing will induce investment, since it is likely that "implicit factors" could cause a further divergence between the flow-supply price and the forward price which is the root of the issue to begin with. The fall in interest payments—which is a result of the fall in interest rates also reduces spot prices via the Kalecki equation (explained below) and, more generally, a fall in aggregate demand (Papadimitriou and Wray 2021).

[11] Unless there is direct yield control.

The use of quantitative easing, via a dealer-of-last-resort approach of the central bank, will only inject the commercial banks with reserves, which cannot constitute spending or affect prices without being borrowed by someone in the private sector. Thus, the rise in the quantity of reserves on its own is unlikely to increase the spot price or reduce the expected future spot price or reduce the flow-supply price to help out with the contango situation.[12] In fact, the readiness of the central bank to create a market for bad financial securities may even increase the liquidity premium, since physical capital assets receive no such privilege on default. Thus, the implicit return (user-cost) on physical capital assets must be even higher to induce its ownership and production. Thus, the divergence between the flow-supply price and forward price (expected future spot price) is potentially increased, which may make the contractionary contango situation worse.

Another important caveat is the fragility of low interest rates after quantitative easing on financial intermediaries. Ryan-Collins (2023) and Kregel (2014b) point out that after quantitative easing, when excess reserves are being drained and repo markets are at their most active, the financial sector faces a large interest-rate risk. A rise in risk could cause liquidity and solvency issues, as recently observed in the Silicon Valley Bank and First Republic bank crisis (Ryan-Collins 2023). This is likely to further worsen expectations, causing a fall in the future expected spot price and worsening the contango.

5 FISCAL POLICY: A RELIABLE PATH TO BACKWARDATION

The previous sections were mostly a negative contribution, since we explained, using the "veil of money" approach, why monetary policy could be an unreliable tool to get the economy out of a slump. This was because of the different steps through which monetary policy's effects had to jump hurdles to finally arrive at commodity prices. In this section, we argue that we must address the concern of commodity prices directly, through fiscal policy, and more accurately through the use of automatic stabilizers. Automatic stabilizers are non-discrete policies of a strong

[12] Unless someone were to assume that lower interest rates signal that prices will go up in the future and everyone holds this belief.

countercyclical nature, such as job guarantee programs. In a slump, the existence of the job guarantee implies an increase in employment through the public program and an increase in injections from the government to the public sector. As the slump turns into a boom, the private sector increases their demand for labor, and the number employed in the job guarantee program falls, reducing the injection from the government to the private sector and thus meaning the government contributes less to "overheating." The job guarantee sets a wage floor and ensures that workers have access to means to sustain themselves at all times, thus setting a floor on aggregate demand.

This section will use the Kalecki price and profit equation to explain how government injections can set a floor to (spot) prices and profits, and, thus, can maintain a backwardation and stimulative environment by keeping the spot price higher than the forward price and the forward price at least equal to the flow-supply price. The floor on commodity prices and profits stabilizes the prices of assets, which are net present value calculation. The stability of prices of assets provide stability to liability prices, i.e., the value of those liabilities which were issued to finance and funded the capital assets have a stable value due to reduced uncertainty promoted by the profit and price floors. The floor to asset prices also implies a floor on the net-worth[13] of units which further contribute to stabilizing the price of liabilities. In this manner, we are able to approach the problem bottom-up. The central bank and monetary policy still play the important roles of facilitating the payments system, maintaining financial stability, and providing regulation. Thus, we adopt the big bank and big government approach of Minsky (2008b). The use of automatic stabilizers not only ensures a floor on profits and prices in the period of spending but a permanent floor on profits and prices, thus building the confidence of capitalists that there will almost always be a backwardation situation. The importance of confidence over time is stressed in previous sections. A prominent example of an extremely efficient automatic stabilizer is the employer of last resort and on-the-spot employment programs (Tcherneva 2012, 2014).

[13] Net-worth is the difference between the value of assets and the liabilities of a unit.

The Kalecki price and profit equations are illustrated below as a reference to the rest of this section. We consider a three-sector closed economy with a consumption goods sector, an investment goods sector, and a government sector. First, we present the Kalecki price equation:

$$P_c = \frac{W}{A}\left(1 + \frac{N_I}{N_C} + \frac{Def}{WN_C}\right)$$

Where P_C is the price of current output, and can be thought of as the spot price. W is the level of money wages, note we assume a uniform wage rate. A is the productivity of the consumption (current) goods sector. N_I is the level of employment in the investment goods sector and N_C is the level of employment in the consumption goods sector. Def is the level of government deficits.

We can see from this equation, if the government did not exist and we were to assume a government deficit equal to zero, the spot price of current output would be vulnerable to changes in the decision to invest, which determines the level of employment in the investment goods sector. We can assume money wages to be constant and productivity to be positively related to economic activity up to some level of capacity utilization. Thus, without government spending, slumps would see low prices and profits due to weak investment (employment in the investment goods sector) and low productivity and booms would see high prices. It is highly likely that during slumps we will continue to be in a contango, and spot and forward (expected future spot) prices would be lower than the flow-supply price. Thus, the deficit gives prices of current output the chance to be affected by some other force. This force could add to instability or bring stability, depending on how well it counters the pro-cyclical movement of investment spending.

An automatic stabilizer, like the job guarantee, would ensure that the government deficit offsets changes in investment spending. Not only will the government promote good deficits which are counter-cyclical by doing so, but it will also reduce the volatility of investment spending (Wray 2019; Tcherneva 2014). This is because the fall or rise in the $\frac{N_I}{N_C}$ component of equation (1), would, to a large extent, be offset by a change in the $\frac{Def}{WN_C}$ component. Thus, the spot price of current output and commodity prices would have some floor, and this floor could be, to some extent, exogenously set via the government deficit such that it is higher than the flow-supply

price. Therefore, a sufficient level of profits can be assured to defeat the implicit returns on money and other financial assets, motivating investment. The government, by setting a direct floor on commodity price and thus profitability, can then ensure one of the necessary conditions of investment (backwardation), because, if the spot price is higher than the flow supply price, we know at least some transactions/production would be motivated (Davidson 1972). Since the government deficit's movement is endogenous and the public knows its counter-cyclical nature, the forward price (expected future spot) would always be held at a level higher than the flow supply price. Recall that the persistence of favorable expectations is the second condition required to stimulate investment. Since the spot price is greater than the forward price which is greater than the flow supply price, we are in a condition of backwardation and are thus maintaining a conducive state of expectations for an expanding economy.

In addition, prices are supported by government deficits instead of private deficits or firm deficits. The higher prices depend on the $\frac{N_I}{N_C}$ components, the more the profit has to depend on deficits being run by households or non-financial firms to externally finance investment or accrue retained earnings to finance investment, increasing the financial fragility and borrower's and lender's economic risk as prices rise, since the level of external debt rises. This is especially encouraged by monetary policy that keeps interest rates low and liability prices high, stimulating economic activity through debt. Financial fragility, as stated by Minsky (2008b), would already plant the seeds for the next crisis.

If instead it were the government supporting prices through their deficits, then a higher share of private investment would be funded by retained earnings/savings accrued from the initial finance created by governments via government spending. The destructive and competitive link between (capital) asset and (financial) liability prices would, therefore, be less pressing. The absence of a floor on liability prices and excessive financial activity would also likely reduce the flow-supply price as the liquidity premium on money and other liabilities would reduce, requiring assets to generate fewer excess profits and lowering margins of safety. This makes backwardation more likely from the spot, the forward (future expected) spot, and flow-supply price perspectives. The certainty of profits and sufficiently high prices and backwardation for long periods of time provide stability to asset prices and liability prices. The former is a net present value calculation

of expected cash flows which are less uncertain due to the price floor, giving stability to the ΣQ and p_{mos} components from the previous section. Assuming no changes in monetary policy, we can conclude stability of asset prices. The stability of asset prices and profits reduces uncertainty that the financial liabilities issued against these capital assets are less likely to default, giving a fundamental stability to values of liabilities issued against assets and other liabilities. In this way, we promote financial stability bottom–up.

For these reasons, this paper advocates fiscal policy and automatic stabilizers over unconventional monetary policy which relies on shaky premises of unconvincing theories and takes unnecessary, indirect routes through the slippery stages of the "veil of money."

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