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**On the Minskyan Business Cycle**

by

Korkut A. Erturk  
University of Utah

and

The Levy Economics Institute of Bard College  
[erturk@economics.utah.edu](mailto:erturk@economics.utah.edu)

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The Levy Economics Institute  
P.O. Box 5000  
Annandale-on-Hudson, NY 12504-5000  
<http://www.levy.org>

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## **ABSTRACT**

The essential insight Minsky drew from Keynes was that optimistic expectations about the future create a margin, reflected in higher asset prices, which makes it possible for borrowers to access finance in the present. In other words, the capitalized expected future earnings work as the collateral against which firms can borrow in financial markets or from banks. But, then, the value of long-lived assets cannot be assessed on any firm basis, as they are highly sensitive to the degree of confidence that markets have about certain events and circumstances that will unfold in the future. This means that any sustained shortfall in economic performance in relation to the level of expectations that are already capitalized in asset prices may promote the view that asset prices are *excessive*. Once the view that asset prices are excessive takes hold in financial markets, higher asset prices cease to be a stimulant. Initially debt-led, the economy becomes debt-burdened. In this article, it is argued that Keynes's views on the alternation of the "bull" and "bear" sentiment and asset price speculation over the business cycle can explain two of Minsky's central propositions relative to business cycle turning points that have often been found less than fully persuasive: (1) that financial fragility increases gradually over the expansion, and, (2) that the interest rate sooner or later, increases setting off a downward spiral bringing the expansion to an end.

Keywords: Minsky, two-price theory, speculation, financial fragility

JEL Codes: B22, E12, E44

## INTRODUCTION

Minsky's seminal contribution was to underscore the importance of speculation in economic activity. Emphasizing that a firm's investment decision is inherently a speculative one, he reintroduced asset prices back into Keynesian theory of investment. Any decision to acquire real capital assets, as he was keen to emphasize, bequeaths the firm with a certain liability structure that shapes its balance sheet for a long time to come. This liability structure is either validated or contradicted by future events, with possibly dire consequences as firms' expected returns might never be realized. Yet, despite this emphasis on the speculative character of investment decisions, Minsky paid little attention to asset price speculation *per se*, ignoring asset price bubbles and their macroeconomic effects.

From the point of view of history of thought, Minsky can be seen to have revived a good part of Keynes's analysis in the *Treatise* (Kregel 1992) that was eclipsed by the *General Theory*. But, at the same time, he not only ignored the role asset price speculation played in Keynes's analysis of the business cycle in the *Treatise*, but also, generally refrained from crediting this work as the source of his "two-price" theory. In Keynes's famous Quarterly Journal of Economics article (Keynes 1937a), which Minsky extensively referenced throughout his work, Keynes talked about how people in financial markets tend to fall back on convention in forming expectations about an uncertain future, and emphasized how valuations can change drastically and violently because doubts of panic have a life of their own close to the surface. In the *Treatise*, the changing size of the *bear position* was the very index of what was brewing under the surface, of what he called the "other view." It provided a convenient setting for analyzing the macroeconomic effects of asset prices the preponderance of market opinion held to be misaligned (Erturk 2006). This was the thread of the argument in the *Treatise* Minsky overlooked, either because his views were formed during the era of financial regulation, when speculation "could do no harm as bubbles on a steady stream of enterprise," or, perhaps, he just wanted to stay clear of the acrimonious debates that broke out between Keynes and his critics on the rate of interest after the publication of the *General Theory*. Whatever might have been Minsky's real reason, we neither can know nor does it matter that we do. What, however, is worthwhile is to discuss the importance of the missing part

of the analysis from the *Treatise* for Minsky's own account of how a business cycle expansion comes to an end. The point of the article is to make that connection.

The essential insight Minsky drew from Keynes was that optimistic expectations about the future create a margin, reflected in higher asset prices, which makes it possible for borrowers to access finance in the present. In other words, the capitalized expected future earnings work as the collateral against which firms can borrow in financial markets or from banks. But, the value of long-lived assets cannot be assessed on any firm basis as they are highly sensitive to the degree of confidence markets have about certain states of the world coming to pass in the future. This means that any sustained shortfall in economic performance in relation to the level of expectations that are already capitalized in asset prices is susceptible to engendering the view that asset prices are *excessive*. Once the view that asset prices are excessive takes hold in financial markets, higher asset prices cease to be a stimulant and turn into a drag on the economy. Initially debt-led, the economy becomes debt-burdened.

In this article, I suggest that Keynes's views on the alternation of the "bull" and "bear" sentiment and asset price speculation over the business cycle can provide a satisfactory explanation for two of Minsky's central propositions in relation to business cycle turning points that have often been found less than fully persuasive in the way they have been expounded: (1) that financial fragility increases gradually over the expansion, and, (2) that the interest rate sooner or later increases setting off a downward spiral bringing the expansion to an end.<sup>1</sup> The gist of the said argument from the *Treatise* says that the rise of the bear position during late expansion impairs the ability of the banking system to accommodate rising levels of economic activity and, thus, is the real culprit behind the eventual rise in the interest rate during a business cycle expansion. This is typically caused not because fear of inflation, or some other extraneous consideration, forces the central bank to curtail credit to the system but because financial sentiment shifts for the worse and asset prices all of a sudden begin to look excessive.

The following discussion is organized in five sections. First section gives a brief overview of the conceptual structure of the argument in the *Treatise*, and the second discusses the role asset price speculation plays over the business cycle in it. The third

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<sup>1</sup> See, among others, Lavoie (1986, 1992, p. 199)

section draws out some of the theoretical implications of the argument in the *Treatise* with respect to the conditions under which speculation can be both stabilizing and destabilizing. The fourth section situates Minsky's contribution in the historical context of the marginalization of the two-price theory in the *Treatise* as it has become increasingly overshadowed by the theoretical developments following the *General Theory*. The last section includes a few concluding comments.

## **STRUCTURE OF THE ARGUMENT IN THE *TREATISE***

Keynes's main contention in his *A Tract on Monetary Reform* was that price fluctuations over a business cycle were characterized by systematic changes in the demand for real money balances rather than by exogenous shifts in the money supply. That was why any attempt on the part of monetary authorities to keep the money supply steady would fail to achieve price stability (Keynes 1973 vol. IV, p. 69). Instead, the more effective policy in Keynes's view had to aim at changing the money supply to compensate for the systemic shifts taking place in the demand for real money balances over the credit cycle. If changes in desired money-balances had a systemic character, this also meant that the excess of investment over saving could correspond to a fall in demand for money in relation to supply as well. In other words, the dual of the difference between investment and savings did not just have to be an increased supply of money as Wicksell laid out, but could also come about by a fall in the demand for money balances through dishoarding. Likewise, periods of excess savings would be characterized either by increased monetary hoarding or decreasing money supply, or some combination of both. The disaggregation of money demand by the type of agent and transaction in the *Treatise* was thus motivated in part by Keynes's desire to analyze changes in hoarding over the credit cycle.

Keynes's second insight was that a credit cycle expansion, or the transition from one position of equilibrium to a higher one in the sense of the quantity theory of money, the prices of capital goods varied systematically in relation to those of consumer goods. Later revived by Minsky, this view held that the prices of capital goods are determined in financial markets by profit expectations that are reflected—though not always accurately as we shall see—in securities prices, while consumer goods prices are determined by the relative magnitude of consumer demand in relation to the available supply. Thus, the very

*modus operandi* of monetary expansion involved changes in the relative values of capital and consumer goods, and that is why the classical dichotomy, Keynes held, was not viable.<sup>2</sup>

Finally, in the *Treatise*, Keynes then linked expected changes in securities prices over the credit cycle to changes in net hoarding—his first innovation—through the variations in the stock demand for financial assets, by what he called the “state of bearishness.” For instance, a period of early expansion is typically characterized in his view by excess investment, expected increases in asset prices and falling state of bearishness, and thus net dishoarding. This makes it all the easier for banks to accommodate a rising level of activity without having to raise the rate of interest. In this approach, speculation about asset price expectations is an integral part of the investment savings nexus, where changes in the state of bearishness has a direct *quantity* effect on the relative size of inactive balances without necessarily causing a change in the rate of interest or asset prices in general.

### **ASSET PRICE SPECULATION IN THE *TREATISE***

In the *Treatise*, monetary circulation is divided into industrial and financial parts, associated, respectively, with the circulation of goods and services and that of titles to financial wealth. The amount of money in industrial circulation is closely related to the level of output and expenditures. Financial circulation, by contrast, primarily reflects the size of the bear position, referring to those who choose to keep their resources in liquid form having sold securities short. Keynes took the volume of *cash* deposits as a rough measure of the size of industrial circulation and *savings* deposits as that of the financial circulation.<sup>3</sup>

The desire to remain more, or less, liquid is of course not independent of the actual changes in security prices. The fall (rise) in security prices in relation to the short-term

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<sup>2</sup> After the *General Theory*, this idea all but disappeared as macroeconomics came to be associated with one-commodity models even among Keynesians (Leijonhufvud 1968, p. 23).

<sup>3</sup> Keynes maintained that saving deposits would typically be held in the form of “deposit accounts” (which corresponds to time deposits in the U.S.) and while cash deposits would take the form of “current accounts” (checking or demand deposits in the U.S.).

rate of interest can partially offset the bearish (bullish) sentiment, thus the actual increase (decrease) in the volume of savings deposits also depends on the extent of the fall in securities prices. This implies that, “[t]here will be a level of security prices which on the average opinion just balances the bullishness [or bearishness], so that the volume of savings deposits is unchanged. (Keynes 1973 vol.V, p. 224). If security prices fall (rise) beyond this point, then the savings deposits might actually decrease (increase).

In the *Treatise*, Keynes defines four types of speculative markets in connection with different configurations of the bear position (Keynes 1973 vol. V, p. 226). These typically correspond to different phases of the business cycle. The first involves a decreasing bear position, i.e., a decreasing volume of saving deposits, at a time of rising security prices. Keynes calls this a “bull market with a consensus of opinion” and distinguishes it from a “bull market with a difference of opinion” where the bear position is increasing at a time when security prices are also rising. In the former case, which typically holds during early expansion, the preponderance of market opinion holds that security prices have not risen sufficiently, while in the latter case, corresponding normally to late expansion, an ever rising segment of the market thinks that security prices have risen more than sufficiently. The third case, which corresponds to early recession, is a “bear market with a consensus,” and again Keynes distinguishes this from a “bear market with a division of opinion.” The former involves a rising bear position, i.e., increasing volume of saving deposits, at a time of falling security prices and the latter a decreasing bear position when security prices are still falling. In the former, the predominant market opinion is that security prices have not fallen sufficiently and that they have fallen more than sufficiently in the latter.

From the point of view of orthodox theory of finance, it does not make any sense to say that security prices have increased or decreased more, or less, than *sufficiently* if no new information has emerged at a given point in time. For, if securities are thought to be undervalued, then arbitrageurs would continue to buy them until their prices are bid up to a level that is no longer considered low. Likewise, if securities are thought to be overvalued, again, arbitrage would bring their value down to a level consistent with what is considered to be their “true” value. Thus, at a given point in time, with an unchanged

information set, the prevailing asset prices must be the best estimates of fundamental values.<sup>4</sup>

However, Keynes's approach in the *Treatise* is consistent with the modern "noise trader" (or the so-called *behavioral*) approach to finance, which holds that *riskless* arbitrage is not effective in relation to the prices of shares or bonds as a whole and severely limited even when it comes to the relative prices of individual assets (Shleifer & Summers 1990, Shleifer & Vishny 1997). According to this view, even when it is assumed that arbitrageurs know what fundamental values are, they face no *riskless* arbitrage opportunities when actual prices deviate from their true values. For with a finite time horizon, an arbitrageur faces two kinds of risk: when s/he, say, sells overvalued assets short it is possible that by the time s/he is supposed to liquidate his/her position (1) economy can grow so rapidly that the true values increase, or, more importantly, (2) asset prices might be even more overpriced. In both cases, the arbitrageur would be experiencing losses. Thus, the fear of loss would limit the initial positions the arbitrageurs take and thus prevent them from driving prices down in any significant way. Moreover, if we drop the assumption that arbitrageurs know what the true values are, the risk of loss they face is higher, and the compensatory shift in demand for the undervalued securities smaller.

In a vein very similar to the modern behavioral approach, in the *Treatise*, Keynes remarks that when prices deviate from their "true" values no automatic mechanism exists in the short run to check their deviation. *Opinion*, or what we would today call, *noise* (Black 1986) moves prices. "If everyone agrees that securities are worth more, and if everyone is a 'bull' in the sense of preferring securities at a rising price to increasing his savings deposits, there is no limit to the rise in price of securities and no effective check

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<sup>4</sup> The more elaborate justification of this position is based on "the efficient market hypothesis," which has gained currency among economists after Samuelson's (1965) "proof" that in a market that is *efficient* in appropriating all available information stock prices should exhibit a random walk and Fama's (1965) demonstration that they almost actually do. But, neither proposition is considered valid any longer in the finance literature. Empirically, it is shown that stock prices do not exhibit random walk, and theoretically it is shown that *unforeseeable* prices are neither necessary nor sufficient for *rationally* determined stock prices. See, among others, Lo & MacKinlay (1999), Bossaerts (2002) and Shleifer (2000).

arises from a shortage of money” (Keynes 1973 vol. V, p. 229). However, as prices continue to rise, a “bear” position begins to develop, and that is what can eventually check the rise in prices. “...[I]n proportion as the prevailing opinion comes to seem unreasonable to more cautious people, the ‘other view’ will tend to develop, with the result of an increase in the ‘bear’ position...” (Keynes 1973 vol. V, p. 228-9).

In Keynes’s discussion in the *Treatise*, the rise of the bear position at a time when security prices are rising plays an important role in explaining the turning point of a business cycle expansion. In his view, “it is astonishing ... how large a change in the earnings bill can be looked after by the banking system without an apparent breach in its principles and traditions” (Keynes 1973 vol. V, p. 272). Yet, the banking system’s ability to accommodate a rising level of production is typically impaired at some point during a business cycle expansion. That happens typically not because the banking sector is held back by the central bank or faces some intrinsic difficulty, but because the financial sentiment falters. The trigger can have a myriad of immediate causes but the underlying reason is almost invariably the fact that the actual performance of profits, though they might still be rising, falls short of the high expectations that underlie asset prices. As the view that the market might be overvalued begins to take hold, the bear position develops, and “...the tendency of the financial circulation to increase, on the top of the increase in the industrial circulation ...break[s] the back of the banking system and cause it at long last to impose a rate of interest, which is not only fully equal to the natural rate but, very likely in the changed circumstances, well above it” (Keynes 1973 vol. V, p. 272).

### **“BEAUTY CONTEST” AND ASSET PRICE BUBBLES**

Ever since Friedman (1953) argued that destabilizing speculation would be unprofitable, and, thus, unsustainable in the long run, the mainstream view among economists has assumed that speculation as a rule could not be destabilizing. Asset price bubbles were considered highly unlikely if not impossible in a “normally” functioning market.

The intuition behind Friedman’s argument rested on a simple view of arbitrage, in which the market comprises smart traders who know the true values and misinformed noise traders. If securities are undervalued, as the argument goes, then the smart traders would continue to buy them until their prices are bid up to their true value. Likewise, if

securities are overvalued, smart traders would sell them, bringing their price down to their true value. Indeed, under these conditions, speculation is always stabilizing and profitable. Misinformed noise traders create riskless arbitrage opportunities that smart traders profit from, while making losses themselves. In other words, this implies that the rate of current price change is a function of the difference between the current price and the expected future price, which is by assumption equal to *true* value. In simple terms:

$$\frac{dP}{dt} = j(P^e - P), \quad (1)$$

where,  $P^e$ , the future expected price, is assumed to be constant ( $P^e = \bar{P}$ ) and equal to the *true* value, and  $j$  is the adjustment coefficient indicating the speed with which traders respond to changes in current price. When

$$P > P^e \quad \text{then} \quad \frac{dP}{dt} < 0$$

and  $P < P^e$  then  $\frac{dP}{dt} > 0$ .

The time path of price is given by,

$$P(t) = P(0)e^{-jt} + P^e,$$

which clearly cannot be unstable, since the stability condition  $j > 0$  is always satisfied because the speed of adjustment is positive by definition.

Undoubtedly, the assumption that smart traders or speculators know with certainty what the true value is is exceedingly unrealistic. But, even under this strong assumption, it does not necessarily follow that the deviation of the current price of an asset from its true value creates a riskless arbitrage opportunity. As mentioned above, the speculator who sells overvalued assets short can find that by the time s/he is supposed to close his/her position, the true value has increased, or, that the assets in question have

become even more overpriced.<sup>5</sup> In both situations, the speculators who have sold securities short would be making losses. Even if the true value is known, it does not follow that it would be equal to the expected future price. Thus, because the fear of making losses would cause smart traders to limit the initial positions they take in an over or undervalued asset, current price might not smoothly adjust to its true value. Needless to say, if we drop the assumption that speculators know what the true value is, the risk of loss they perceive is likely to be higher, and the compensatory shift in demand for undervalued assets smaller. That is why the modern *behavioral* approach to finance holds that the effect of arbitrage can be severely limited.

This also takes us very close to a world described in Keynes's (1936, Ch. 12) famous beauty contest analogy, where speculators base their expectations of future asset prices not only on what they think the true values is, but, more importantly, on what they think the average opinion about the average opinion is. In other words, *noise* (Black 1986) is at least as important as information about true values in causing asset price changes, rendering the resale price uncertain. Uncertainty about the future resale price means that traders lack a terminal value from which to backwardize, which in turn implies that they must not only form higher order expectations (i.e., on what others think others think) but also decide how much weight to assign them relative to what they themselves think the true value is (Hirota & Sunder 2003). Since no direct information exists on others' higher order expectations, traders have to infer that from market trends, i.e., the magnitude and direction of changes in current price.

For instance, if a trader observes that the price of an asset (or an asset group) which s/he thinks is already overvalued is still rising in price, s/he is led to surmise that either her/his opinion about the true value is wrong or that the price increase indicates a bubble, i.e., a self-sustained rise in price on account of noise trading driven by the average opinion thinking that the average opinion thinks the price will keep on rising. In either case, the current price changes are likely to gain in importance in how the trader forms his/her expectation about the future price. The current change in price becomes

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<sup>5</sup> Shleifer & Summers (1990) call these, respectively, the *fundamental value* and *noise trader risk*,

either a proxy for the higher order expectations or a corrective on opinions about the true value, or, some combination of both.

If so, the crucial variable that determines whether speculation is stabilizing or not very much depends on the relative weight traders assign to their higher order expectations (i.e., what they think others think others think) relative to their own assessment of what the true value is. To the extent that they do, they become more responsive to the current price change in forming their expectations about the future price. In Kaldor's (1939) formulation, whether speculation is stabilizing or not in this setting depends on the elasticity of future price expectations with respect to present price changes.<sup>6</sup>

If indeed the expected future price can be thought to comprise two parts, then we can write:

$$P^e = \bar{P} + \sigma \frac{dP}{dt}, \quad (2)$$

where  $\bar{P}$  is what the true value is believed to be (and is assumed constant for simplicity), and  $\sigma$  is the coefficient of elasticity for expectation of elasticity of the future price with respect to the current change in price.

Plugging (2) in (1) gives:

$$\frac{dP}{dt} = j[\bar{P} + \sigma \frac{dP}{dt} - P],$$

and rearranging we get;

$$\frac{dP}{dt} + \frac{j}{1 - \sigma j} P = \frac{j}{1 - \sigma j} \bar{P}$$

which, in turn yields the following time path of price;

$$P(t) = [P(0) - \bar{P}]e^{\frac{-j}{1-\sigma j}t} + \bar{P}$$

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<sup>6</sup> See also Hicks (1946, pp. 205-6).

The stability condition,  $\sigma < \frac{1}{j}$ , shows that stability depends on both the elasticity of expectations and the reaction speed. If the reaction speed is assumed instantaneous ( $j = 1$ ), a less than unitary elasticity of expectations ( $\sigma < 1$ ) ensures stability as Kaldor argued. In other words, destabilizing speculation—and an asset price bubble—requires that traders revise their expected future price proportionally more than the change in current price. However, the lower the reaction speed ( $j < 1$ ), the greater is the extent to which the threshold value of  $\sigma$  exceeds unity.

It is highly plausible that both the reaction speed ( $j$ ) and the elasticity of expectations ( $\sigma$ ) might respond to changes in market opinion as to the degree to which asset prices are overvalued. As remarked above, if a trader observes that the actual price is well above what s/he thinks the true value is and still rising, s/he either begins to lose confidence in his/her own opinion on what is reasonable or think that asset price increases have acquired the character of a bubble. In either case, an increasing number of traders who might think alike will either leave the market or become much more responsive to current price movements in forming expectations about the future price—either *naively* as noise traders or *smartly* as speculators are presumed to do. In this setting, unlike what Friedman foresaw, successful (*read* rational) speculators are those who engage in “trend” speculation, where they act like noise traders themselves in the short run, trying to feed the bubble rather than help deflate it (De Long et al. 1990).<sup>7</sup> Because the successful speculative strategy entails jumping on the bandwagon of noise traders and knowing when to get off while the rest rides on, this might also imply a rising reaction speed. Thus, any sustained trend of a current price increase from what the market opinion generally holds to be the true value, whatever the cause, is likely to raise both the elasticity of expectations and the reaction speed. While this does not explain how initially prices become misaligned, it suggests speculation can become destabilizing once price deviations exceed in size and duration a certain threshold.

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<sup>7</sup> In the modern finance literature on asset price bubbles the emphasis, until recently, was on rational traders’ risk aversion which was thought to prevent them from eliminating noise-driven price movements. However, the focus has been shifting to “trend” speculation as the winning strategy for speculators, a fact well known to market participants all along (Soros 1987; Temin and Voth 2004).

In a similar manner, Keynes's discussion on how asset prices behave over the business cycle, in his *Treatise*, seems to presuppose that speculation can be both stabilizing and destabilizing, depending on the phase of the cycle. As discussed in the previous section, Keynes argues that agents form expectations about the trend value of asset prices and the weighted average of these opinions tend to shift over the course of a business cycle expansion, which are then reflected in the changing size of the bear position in the economy. He stylistically divides the expansion phase of a business cycle into two parts, where the preponderance of market opinion holds that asset prices are alternately undervalued and overvalued during the early and late periods of the cycle. The latter period owes its existence, and is prolonged in duration, to the extent that the banking system transfers the *bear* funds (bank deposits of those who have sold securities short) to those who still have a *bullish* sentiment that asset prices will continue to rise. In other words, while asset prices are rising in both periods, in the former their increase is driven by *fundamentals* and in the latter by *speculation*. By implication, while speculation is stabilizing in the former period it becomes destabilizing during late expansion, giving rise to a bubble.

Thus, Keynes's argument in the *Treatise*, implies that the elasticity of expectations can vary endogenously over the business cycle. When traders observe that the actual price is well above what they think the true value is and still rising, they not only infer that higher order expectations are at work but also in increasing numbers assign greater weight to them (what they think others think others think) over their own opinion. They begin to either lose confidence in their own judgment of what is reasonable or think that asset price increases have acquired the character of a bubble. In either case, they become much more responsive to changes in current price in forming expectations about the future price. That, in other words, implies a *regime* shift from inelastic to elastic expectations as traders begin to discount their own opinions in forming expectations about the future price.

Keynes's discussion of the trade cycle in the *Treatise* presupposes a regime shift of this sort. During the upswing, actual profits cannot increase at an increasing rate, while asset prices often will. Thus, sooner or later, optimistic expectations, and thus the asset prices that they underlie, outstrip the actual performance of profits. The latter, though still

rising, eventually falls short of the former, but the bullish sentiment tends to persist. Thus, what eventually “breaks the back of the banking system,” causing the rate of interest to rise, is the development of the “other view” which holds that asset prices have become excessive.

### **DEBATE ON THE TWO-PRICE THEORY**

Robertson (1931) objected to Keynes’s employment of two separate principles to determine, respectively, the investment and consumer goods prices in his *Treatise*. He argued that Keynes could insulate the price level of new investment goods from changes in the flow of savings only because he was assuming that over saving was associated with hoarding and under-saving with dishoarding. This argument was only partially true in part because it mis-specified the real issue of contention between them. The very logic of the quantity equation as an accounting identity, as Wicksell laid bare, requires that a reduction in monetary income (over-saving) involves a decreased monetary circulation. This can come about either through a fall in the total quantity of money or increased hoarding, or some combination of the two. Thus, if the quantity of total money is not decreasing, over saving has to be associated with an increase in net hoarding, and thus a fall in the overall velocity for the broad money supply. Otherwise, over saving and thus a fall in monetary income could not have occurred.<sup>8</sup> So, there was something to Robertson’s objection. But, the real contentious issue in his criticism was whether or not this increase in inactive balances (hoarding) would also translate into excess demand for financial assets. If it did, as Robertson seems to have argued, then, clearly the price of securities (and thus that of new investment goods) could not be determined independently of savings as Keynes had. Thus, Keynes’s “two price” theory was (or should have been) the central issue in this debate.

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<sup>8</sup> In his haste to make the point that excess savings and increased hoarding were not one and the same, Keynes appears to have caused confusion by insisting that over saving had no particular relation to increased inactive balances unless the banking sector chose to supply a higher amount of saving deposits, without however indicating that what he took as his *default* case was an endogenous fall in the supply of money. Though, technically, excess savings can be associated with neither a fall in the money supply nor increased net hoarding in a given period if “non-GDP” transactions increase inordinately relative to those on the currently produced output, but this cannot be generally the case.

In his rebuttal of Robertson, Keynes argued that a situation of over-savings involves windfall losses for a class of entrepreneurs who would be forced to liquidate a part of their asset positions in order to be able to meet their current financial obligations that can no longer be covered by sale proceeds (Keynes 1973 vol. XIII, pp. 219-36). Thus, the increased demand for financial assets, if indeed inactive balances caused that, would be balanced by the increased supply coming from those entrepreneurs running down their reserves of financial assets to compensate for their windfall losses. In other words, the increase of wealth savers experience at the end of the period would be matched by the decrease of wealth experienced by entrepreneurs facing windfall losses. The prices of financial assets would then remain basically unchanged, provided that the state of bearishness of savers is not significantly different than that of entrepreneurs. While this argument is plausible, it might have detracted attention from the real issue.

For Keynes's stronger argument is of course the broader justification for his "two-price" theory, which he also restated in his rebuttal (Keynes 1973 vol. XIII, pp. 220). In the language of modern finance theory, this can perhaps be put more succinctly: The price of an asset is determined solely by its expected future price, independently of its current flows of supply and demand, if these flows are dwarfed by speculative stocks that are *very* large. Thus, the impact of "outside" supply and demand on the current price can be only indirect, through its influence, if any, on the expected future price of the asset in question.<sup>9</sup> In a nutshell, this was the gist of Keynes's argument in justification of his "two-price" theory. Already in the *Treatise*, Keynes had made a distinction between the decision to save in the sense of non-consumption, and the decision on how to dispose of what is not consumed, and remarked that the main consideration in making the latter decision is the current and expected future asset prices, which also influenced how all financial wealth was held. Because the marginal increase in financial wealth, equal to current savings used to purchase securities, was "trifling" in magnitude compared to the total stock of wealth, expectations about the future asset prices were much more important than the marginal increase in the demand for financial assets. The way he put

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<sup>9</sup> Ironically, the "efficient market hypothesis," which the detractors of Keynes were quick to embrace, also presupposes that the current asset prices are solely determined by their expected future prices independently of outside supply and demand.

it, the “excess bearish” factor, an inverse index of the stock demand for securities, reflected the public’s demand for inactive balances (saving deposits) given their expectations (and degree of their confidence in them) about future asset prices, and the current asset prices changed accordingly to the extent the banking sector chose not to accommodate the changes in public’s demand for saving deposits (inactive balances). In other words, with a given banking sector policy, future asset price expectations governed the current prices of securities (and thus those of investment goods), reflecting in part profit expectations in the real economy along with the other considerations summarized under Keynes’s famous “beauty contest” analogy discussed above.

The “finance” debate that broke out after the publication of the *General Theory* was essentially a continuation of the disagreement Robertson had with Keynes in 1931. It again involved two separate issues—one, about consistency in macro accounting and, the other, on economic behavior—that were entangled together, and the former continued to detract attention from the more important disagreement with respect to the latter involving Keynes’s “two-price” theory. As Keynes redefined investment and savings in the *General Theory*, insisting that they were separate but always equal, agreement first had to be reached on expressing “investment-saving” disequilibrium in terms of a discrepancy between *intended* and *actual* magnitudes, with all the attending confusion about what *intended* savings meant. Then, the focus of the debate again became the monetary corollary of the discrepancy between investment and savings.

In 1931, the issue was the connection between excess savings and increased hoarding (i.e., in the absence of an endogenous fall in the money supply); after the *General Theory*, it became a debate about what the corollary of an increase in “intended” investment was. A rise in the money supply was ruled out by assumption and “dishoarding” had an immediate price effect by definition. Thus, this time around, the whole debate could only be framed from the “money demand” side and focus on the pressure an increase in planned expenditures would exert on the interest rate. In his exchanges with his critics, including Robertson among others, Keynes (1937a, 1937b, 1937c, 1938) had to concede that a rise in planned investment would also raise the demand for money prior to its execution, and, thus, all other things being equal, the interest rate. He emphasized banks’ overdraft facilities to argue that this effect on the

interest rate would not amount to much in practice. Decades later, in another round of “finance” debate an article by Asimakopulos (1983) set off, it was in a similar vein accepted that additional bank finance would be required until the multiplier process worked itself out, generating enough savings to equal the higher level of investment (Chick 1983, 1997).

The effect of these rounds of “finance” debates was to link the increased “planned” expenditures to a prospective increase in the money supply or the interest rate, without however bringing into forefront the more important issue about economic behavior. If anything, this preoccupation with the accounting problem alone had the effect of placing undue emphasis on the so-called finance demand as a separate motivation to hold money, which appears to have weakened the essential aspect of Keynes’s “two-price” theory. In Davidson’s (1978) well-known incorporation of the idea into the IS-LM model, an increase in planned investment not only shifts up the IS schedule but the LM schedule as well, causing the interest rate to go up faster and sooner whenever the level of activity rose. Of course, the verbal explanation of why the interest rate rises was very different than Robertson’s “loanable funds” account, but the end result was the same in obliterating whatever remained intact from what Hicks’ called Keynes’s “special theory.”<sup>10</sup>

## CONCLUSION

As it evolved after the *General Theory*, Keynesian theory had so strayed away from the two-price theory that Minsky (1975) had to reestablish that Keynes was essentially about “an investment theory of fluctuations in real demand and a financial theory of

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<sup>10</sup> While Hicks (1937) arguably stood Keynes’s *General Theory* on its head in his famous review article, he also appears to have identified accurately what was unique about his theory. This was in his opinion the notion that an increase in expenditures and income did not necessarily put an upward pressure on the interest rate. Hicks called this Keynes’s “special theory,” and distinguished it from the GT which in his view was closer to orthodoxy since Keynes’s argument there implied that—as his IS/LM formulation he believed made evident—an increase in expenditure led to a rise in the interest rate, all other things being equal (p. 152). The “special theory” Hicks was referring to is but the essential feature of the “two-price” theory, whereby asset prices are determined independently of investment and saving flows.

fluctuations in real investment” (p. 57). Restating the two-price theory, Minsky reemphasized that changing views about the future exert their influence on the present through their impact on the current asset prices, reflecting the expected profitability of producing investment goods. But, at the same time, Minsky paid little attention to asset price speculation and its macroeconomic effects, and left untouched that part of Keynes’s analysis in the *Treatise* on how self-sustained biases in asset prices affect financial sentiment in financial markets over the business cycle.

The point of this paper has been to argue that what Minsky overlooked in the *Treatise* is of importance for his argument, in that Keynes’s account of how financial sentiment shifts over the cycle in this work can help provide a satisfactory explanation of the turning point of a Minskian business cycle expansion. Just as in Minsky’s account, the expansion in the *Treatise* begins with optimistic expectations enabling firms to capitalize their expected earnings in financial markets and thereby finance their investment expenditures. During the upswing, the actual increase in profits validates the higher asset prices, spurring them to increase further. But, unlike asset prices, actual profits cannot increase at an increasing rate in the course of an expansion. Thus, the rise in profits increasingly lags behind the upward movement in asset prices. As economic performance begins to fall short of the level of expectations that are capitalized in asset values, the view that asset prices are excessive begins to take hold in financial markets and the bear position rises. This is the point at which higher asset prices tend to become a drag on the economy rather than a stimulant, and the pressure on the banking system to raise the interest rate begins to build. Thus, what ultimately impairs the ability of the banking system to accommodate a rising level of economic activity is the fact that at some point during an expansion the financial sentiment falters, and that is why sooner or later the interest rate rises as Minsky insisted that it does.

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