

**Speculation and regulation
in commodity markets:
The Keynesian approach
in theory and practice**

edited by
M.C. Marcuzzo

Dipartimento di Scienze Statistiche
Rapporto Tecnico N. 21 2012



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The Keynesian Approach in Theory and Practice

edited by *Maria Cristina Marcuzzo*

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From speculation to regulation: Keynes and primary commodity markets

*Maria Cristina Marcuzzo**

1. Premise

Keynes was a speculator in commodity markets from 1921 to 1939 (from 1926 through his company, Tilton), when foreign trading was suspended because of the war; from then on he regarded these markets from the point of view of a regulator, putting forward a Buffer Stocks scheme to curb the volatility of commodity prices; this would represent part of his more general proposals to stabilize the international monetary system and foster general growth and prosperity. Clearly his *practice* as speculator had a bearing on his *views* on speculation and the remedies to counter its ill effects.

In a letter to Hawtrey about a month before the publication of the *General Theory*, Keynes wrote, 'I know a great deal' about 'commodity markets and their habits', since 'I have been in constant touch for many years past with dealers in a great variety of commodities and have constantly been engaged in sizing up the significant factors from a practical point of view' (CWK XIII: 627-8).

In this paper I will trace the evolution of his ideas on the matter, which developed from his intimate knowledge of primary commodity markets and his practice as an active player on them. I also present some preliminary findings on his speculative activity, examining two examples of his trading behaviour in the tin and wheat markets, in 1924-25 and from the mid-1920s to the mid-1930s respectively, which are of interest as representative examples of his dealings in the commodity markets.

Here two important points emerge which are worth underlining: 1) in the 1920s and 1930s organized commodity markets were sophisticated trading places in which a variety of derivatives were traded, which could attract shrewd, highly leveraged speculators who could exert a great impact on prices. 2) Keynes was one of them,

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heavily speculating in options (mainly metals) and in futures (mainly crops). While further investigation is needed to fully assess his success with commodities, we can provisionally agree with Moggridge's conclusion that his performance was mixed, varying according to the year and the type of commodity (CWK XII: 15-19). 3) The same mixed results were attained in his dealing in shares for King's College, according to a recent study (Chambers and Dimson 2012), showing that his performance was not as 'stellar' as has often been claimed. Be that as it may, after 27 years of activity as a speculator in commodity markets Keynes turned into a regulator, championing the creation of an international agency which would regulate these markets through a system of buffer stocks financed by the Clearing Union.

It is a straightforward conclusion that his 'extremely wide practical acquaintance with commodity markets and their habits' (Keynes to Hawtrey, 6 January 1936, in CWK XIII: 627-8) left a mark on his views on the perils of 'unfettered competition' and the importance of regulation.

2. Trading in the futures market

The commodities Keynes most traded in the futures market were: cotton, copper, tin, lead, spelter, sugar, jute, rubber, wheat, maize, cotton oil, lard and linseed oil. The selection of the commodities might have been influenced by the knowledge he was acquiring as a professional economist. Between 1923 and 1930 he authored a series of *Memoranda* for the London and Cambridge Economic Service (Keynes 1923-30) on some of the commodities he traded in (cotton, copper, tin, lead, spelter, sugar, jute, rubber, wheat) as well as a few others (nitrate, coffee, tea, petroleum, wool) that he does not seem to have traded. The *Memoranda* structure followed a similar pattern for the supply of information: the level of stocks and consumption, the flow of production and the trend of prices; these were always presented with assessment of the quality and reliability of the data. So it would be fair to say that the main interest of Keynes's analysis lies in the evaluation of the amount of information available for each individual commodity and the degree of uncertainty about the future course of the main factors underlying it.

Collection of the 'relevant information' available was the premise to evaluating the 'weight' of any argument that could be inferred from it, according to the conceptual framework which Keynes used in his *Treatise of Probability* to illustrate any decision making process.

From this viewpoint, i.e., the amount of information and the degree of uncertainty, (which affects the confidence that could be accorded), commodities can be divided into three groups: a) copper, tin and rubber, information being abundant but of variable quality, so that it was difficult to predict the pattern the stocks would show; b) nitrate, lead and spelter, with a low degree of uncertainty and thus possibility of reliable predictions; c) cotton and wheat, for which there was plenty of reliable information, but much uncertainty due to the unpredictability of extra-economic factors (weather, parasites).

There is a further distinction, important in Keynes's opinion, between extracted commodities (metals) which are produced throughout the year and those (textile and food crops) that are harvested in a particular season. The distinction matters for the level of financial facilities required in the passage from production to consumption, namely credit: low in the case of extracted commodities and high in the case of crops. When credit plays an important role in the production process, recourse to the futures markets for the purpose of hedging was even more important and in certain cases even mandatory for the borrower, since lending by banks was often conditional upon it.

Before analysing Keynes's views and practice, it helps to recall the behaviour and the financial instruments which were typical of the futures markets in Keynes's own times, although in many respects they prevail even today.

In organized markets it is not easy to draw a line between hedgers and speculators, but it would be fair to distinguish the class of market players who do not wish to possess (nor use) the commodity they buy forward, nor produce (or own) the commodity they sell forward. It is a class of players, the speculators, who—unlike hedgers—deal in future contracts only, i.e., they do not buy and accept delivery of commodities, nor do they sell or deliver commodities.¹ Instead of settlement by delivery, futures contracts are offset by contracts which are the reverse of the previous commitments. Speculators who have sold (bought) a future contract of a given maturity, before expiration must buy (sell) the same amount of the same future. If they have sold, they are 'short' of a given contract, if they have bought, they are 'long' of a given contract. Hedgers of stocks of cash commodities and speculators who expect a

¹ This definitions correspond roughly to the distinction between commercial or a non-commercial trader according to the US Commodity Futures and Trading Commission. A commercial trader is one who is 'commercially engaged in business activities hedged by use of the futures or option markets. This would include production, merchandising, or processing of a cash commodity, asset/liability risk management by depository institution, security portfolio risk management, etc.' (CFTC Form 40). All other large traders who do not meet these criteria are classified as non-commercials. Commercials are normally referred to as hedgers, while non-commercials have no underlying cash business and are hence treated as purely speculative traders (see Sigl-Grüb and Schiereck 2010: 47).

decline in the price of the underlying commodity sell futures in that commodity (they become 'short'), while hedgers against forward sales of cash commodities or speculators who expect a rise in the price of the underlying commodity buy futures in that commodity (they become 'long') (see Stewart 1949).

Profit in the futures market is made whenever there is a positive difference between the buying and the selling price of any futures contract. If prices *fall*, the 'short' who has sold the future at higher price can buy it ('covering' his/her position) at a lower price, making a profit. The 'long' who has bought the future at higher price and sells it ('liquidating' his/her position) at a lower price, bears a loss. Conversely, if prices *rise*, the 'short' suffers a loss and the 'long' makes a profit. So speculators who expect future prices to rise, are on average 'long' and those who expect prices to fall are 'short'.

Besides futures contracts, options were also typically traded in commodity markets. An option in futures is a contract to buy or sell a future contract at a future time. There are two types of options: a) call options, giving the right to buy the underlying futures at a specified price within a specified time; (b) put options, giving the right to sell the underlying future at a stipulated price at a specified time. If a trader expected an *increase* in the market price of a given future, he/she would buy a call option, which entitles the purchaser to buy the future at a specified price. If the price actually rises above the stipulated price during the specified period, the trader makes a profit exercising the option, i.e., buying the future at the lower stipulated price and selling the future at the higher price. Conversely, if a trader expects a *fall* in the price of the future, he/she would buy a put option, which entitles to sell the future at a given price. If the price actually falls, he/she can make a profit by buying the future in the market and exercising the option, i.e., selling the future at the higher stipulated price. If prices do not match expectations the option is not exercised and the loss is only the premium, i.e., the price paid for the option.

While the buyer of the option has the *right* to buy or sell the underlying future at the stipulated price and time, the seller of the option has the *obligation* to sell or to buy the underlying future at the stipulated price and time. Sellers of put and call options have typically a corresponding position ('long' in the case of a call option and 'short' in the case of a put option) in underlying futures and they trade in the expectation that the option expire worthless so that they can pocket the price of the option (the so called 'premium') as profit.

To buy (sell) options is less expensive than buying (selling) futures since only the price of the option is lost when the option is not exercised.

Finally we need to mention the types of options in which Keynes traded, especially in tin and copper, but also in lead and linseed oil: the ‘buyer’s option to double’ (BOD), the ‘seller’s option to double’ (SOD) and the ‘double’.

For a given sum over the future price the buyer of a BOD had the right to buy, and the seller the obligation to sell, double the amount specified, giving notice a few days before the expiration of the option.² For a sum below the future price, the seller SOD has the right to sell, while the buyer has the obligation to buy, double the amount. The BOD is the combination of an ordinary purchase of a future and a call option, while SOD is an ordinary sale of a future with the purchase of a put option attached. The double³ is a combination of a put and a call, giving the right to exercise only one of the two at the expiration date.⁴

Assuming that the price of a futures contract at the time of maturity fully converges⁵ to the future spot price of the commodity, because of the arbitrage opportunity that would otherwise arise, the relevant variables in the speculator’s decision-making process are the price of the future contract of a given maturity (*FP*), the spot price (*SP*) of the commodity, the expected spot price (*ESP*), and the expected future price (*EFP*) until maturity.

Prices of futures reflect *opinions* as to future demand and supply of the commodity, as well as differences between different markets for the same commodity and between different points in time; in turn demand and supply of options reflect opinions as to the prices of futures. In both cases *opinions about the opinions* of market participants at any point in time matter a great deal.⁶

How did Keynes describe expectations formation? How did *he* form his own expectations? How is the behaviour of the speculator best explained? How can

² How these options worked was explained to Keynes in 1921 by Ruper Trouton, who at the time was with his broker’s firm, Buckmaster & Moore (JMK papers: SE/2/1/126-7).

³ ‘A combination of a put and a call is termed a “straddle” on the American exchanges’ (Smith 1922: 46).

⁴ The cover necessary to carry a position with a broker varied according to the instrument and the underlying. For instance in July 1922, Buckmaster & Moore gave Keynes the following quotes: ‘We expect the following proportions to cover to be maintained intact at all times on open positions at their current valuation: in exchange 20%, in Commodities 30%, on Call options Payment in full. We are content that not only cash balances standing to your credit and securities deposited with us (reckoned at their current market value), but also book profits on your open position, should count towards the proportions of cover required’ (JMK Papers SE/2/2/25).

⁵ ‘In a perfect market with costless delivery at one location and one date, arbitrage should force the futures price at expiration to equal the cash price. Otherwise a violation of the law of one price would exist. In reality, delivery on commodity futures contracts is not costless and is complicated by the existence of grade, location, and timing delivery options’ (Bose 2009: 20).

⁶ As it has been nicely put: ‘the speculator is more interested in what average market opinion thinks average market opinion is going to think about demand to consume three months hence, than in demand to consume itself’ (Eastham 1939: 108-9).

Keynes's behaviour best be analysed? These are the questions I will attempt to address in the following sections.

3. Keynes on speculation

There is no systematic treatment of speculation in Keynes's work⁷ and the question of his views on the matter is best dealt with by examining, in roughly chronological order, the observations on the subject which can be found scattered here and there in his writings.

We can start from the manuscript notes for the preparation of his *Lectures on the Stock Exchange* (1910),⁸ to which Anna Carabelli (2002) has drawn attention, providing interesting and useful comments. Here Keynes is careful to distinguish between gambling and speculation, applying the former term to situations in which risk is not calculable or not normally distributed, such as the game of roulette, and the latter to situations in which the risk is calculable and normally distributed, such as life insurance. The dividing criterion is in the amount of knowledge possessed by the actor in both cases: 'the possession of superior knowledge [is] the vital distinction between the speculator and the gambler' (Keynes 1910: 98).

Superior knowledge confers the speculator with an advantage over the market. To Keynes this is a matter relevant *not* to measuring comparative success in gambling and in speculation, which may be dependent on other factors, but to evaluating the nature of the action in the two cases. Unlike speculation, gambling is not reasonable because is a behaviour which has no basis in knowledge, notwithstanding the fact that a gambler may at times be a winner and a speculator a loser.

The next question is whether this 'superior knowledge' allows the speculator to predict the future course of events. There are passages in the *Lectures* which seem to confirm it:

- 'speculation [is a] reasoned attempt to gauge the future from present known data' (Keynes 1910: 95);
- 'the speculator [is] a person who endeavours to make a profit by means of a power of forecasting the future superior to the ordinary' (Keynes 1910: 95);

⁷ In the literature Dardi and Gallegati (1992) have argued that Keynes's approach to speculation can be traced back to Marshall. On the other hand Carabelli and Lanteri (2011) argue that there are varieties of 'beauty contest' behaviour, namely acting on the basis of forecasting average opinion, and insist on the peculiarity of Keynes's approach in which the beauty contest is a noncooperative game.

⁸ MSS, UA/6/3, Notebook, 8 Lectures on Company Finance and Stock Exchange, Lent Term 1910.

– ‘speculation consists in the use of superior skill in forecasting changes of value to take advantage of them by buying and selling’ (Keynes 1910: 100).

This approach is akin to what we would call today the ‘forecasting theory’, whereby there is no clear trend of price movements in futures markets and profits are determined by the ability of speculators to forecast prices accurately (Lee and Zhang 2009).

The next phase in Keynes’s thinking—as he became more closely acquainted with the working of markets—is the analysis of speculation in futures (currencies and commodities) presented in his ‘The Forward Market in Foreign Exchanges’ (1922), incorporated in the *Tract of Monetary Reform* (1924) and in his 1923 article ‘Some Aspects of Commodity Markets’ (CWK XII: 255-65). The point of speculator as risk-bearer is reiterated in the *Treatise on Money*, where he gave a more refined version of his theory.

Not only is the speculator not a ‘gambler’, but his ability, through superior knowledge, to forecast the future is downplayed. He is not ‘a prophet’ (CWK XII: 260), but rather a risk bearer: ‘The most important function of the speculator in the great organized “future market” [is that of] a risk bearer...’ (CWK XII: 260).

Profits are the remuneration for risk-bearing, not for forecasting skill.

Here we find the theory of normal backwardation/contango, associated with Keynes’s name, according to which to earn positive profit either the speculators are net long (backwardation) or the hedgers are net long (contango). In the former case futures prices normally rise in the duration of each contract, while in the latter the prices of the futures will tend to fall over their life. The theory predicts that future prices have an upward (backwardation) or falling (contango) trend.

In the case of backwardation, if futures prices are downward-biased estimates of expected prices, then they should be seen to rise as the contracts approach maturity. The excess of the expected spot price over the future price decreases as the futures contract approaches maturity because the risk of unanticipated price changes decreases with time, and so does the risk premium hedgers are willing to pay to speculators. Assuming spot prices to remain constant, then futures prices must rise. The price increase, which is brought about by hedgers being long in the underlying commodity and short in the futures commodity, provides the inducement to the speculators to be long in commodity futures.

In the case of contango, if future prices are upward-biased estimates of the expected price, then they should be seen to fall as the contracts approach maturity.

Assuming that the expected price (EP) at the date of stipulation of a futures contract is equal, on average, to the spot price at the date of maturity of the future contract (FSP), i.e.,

$$[1] \quad EP = FSP$$

Keynes defines, ‘the remuneration of risk-bearing is measured by the average excess of the spot price three or six months hence [FSP] over the forward price today [FP] for three or six months delivery’ (CWK XII: 263). In other words,

$$[2] \quad r = FSP - FP$$

When supply and demand are balanced and there are no redundant stocks nor shortage of supply, FP is below SP , i.e., the situation is that of backwardation. Otherwise, when there are redundant stocks or abundance of supply, FP is above SP , i.e., the situation is that of a contango. Note the difference between the *futures basis*, which compares futures prices to contemporaneous spot prices, and the *risk premium*, which is the difference between futures prices and *expected* future spot prices. In order for commodities to be stored, futures prices have to exceed spot prices to compensate inventory holders for the cost of storage. Only when stocks fall below the expected level can the spot price exceed the futures price.

So if there is a contango, the risk premium must be higher than in the normal backwardation: ‘the additional element of uncertainty introduced by the existence of stocks and the additional supply of risk bearing which they require mean that [the producer] must pay more than usual’ (CWK V: 129). So we have

$$[3] \quad r = (FSP - SP) + (SP - FP)$$

4. Keynes’s investments in tin and wheat

In which ways did Keynes use his knowledge of the relevant data to speculate on commodities? I examine Keynes’s investment in two commodities, tin and wheat, in two different time intervals, 1924-6 for tin, 1937-8 for wheat. Keynes traded heavily in these two commodities in the two periods under consideration, and these are therefore representative examples of his trading behaviour.

4.1 Tin

Cash, futures, and ordinary and double options in tin had been traded in the London Metal Exchange (LME) since 1877, and from 1928 on tin futures could also be traded at

the National Metal Exchange in New York (Reitler 1931).

Keynes dealings in tin began in September 1921 and continued until 1929, with only modest trading in the 1930s; tin was the largest commodity (measured by the value of transactions) in his portfolio. His dealings were speculative, with heavy trading in options during 1924-1925, as we shall see below.

The main problem that Keynes faced throughout the 1920s was the lack of any reliable set of data as to the world 'liquid' stocks, i.e., available for immediate consumption. In fact in the 1920s in the tin market the amount of information at the traders' disposal was variable in quality, mainly due to the long distance at which the production sites lay.

The largest tin producing area was in Southeast Asia, mainly in the Federated Malay States, under British control, and the Dutch East Indies. Other important supplies came from Bolivia, while minor sources were China, Siam, Nigeria, Congo, Australia, India and Cornwall. (Eastham 1939: 17-8). With the advent of the Industrial Revolution, the United Kingdom had been importing large tonnages from abroad, but after the First World War the lead was taken by the United States.

Since production was concentrated so far away, it was very difficult to know what the price would be at the time of the ships' arrival some months later. With the invention of the telegraph, intercontinental lines of communication were established between the countries of the world and merchants were able to anticipate the time of arrival of a cargo of metal. They were able to sell it forward for delivery on a fixed date, thus protecting themselves against a fall in price during the voyage.⁹

In the 1920s the market trend was dominated by the parallel but uneven growth of both production and consumption. Price movements were considerable and widely attributed to the extreme rigidity of both supply and demand, a characteristic of the tin market that Keynes frequently noted (e.g. in CWK XII: 377 and 421).

After the post-war slump, consumption grew faster than production and a period of rising prices culminated in the boom of 1925 and 1926, when consumption exceeded production. Then, for six months, prices remained in the neighbourhood of the peak reached in October 1926, while a sharper fall began in 1928.

When tin consumption began to move upward after 1921, the presence of large stocks in the hands of a pool formed in Malaya and the Dutch East Indies (the

⁹ 'In 1869 the opening of the Suez Canal reduced the delivery time of tin from Malaya to match the three months delivery time for copper from Chile. This gave rise to LME's unique system of daily trading dates for up to three months forward which still exists to this day' (see <http://e-bursa.ro/burse-de-marfuri-2/burse-marfuri-europa/london-metal-exchange-lme/>)

Bandoeng Agreement)¹⁰ retarded the adaptation of production to increased consumption. Then, in 1925, when the effect of the Bandoeng scheme was over and prices were reaching an unprecedented level, new investments were made and new techniques adopted. As a result, and although the consumption trend remained on the whole positive, the situation was finally reversed when production overtook consumption in 1928 and new restriction schemes began to be adopted (Eastham 1936); the fall in price lasted until the end of 1930.

A relatively small error in the estimates of liquid stocks, which were normally very low (below on month consumption) could generate erroneous forecasts of the persistence in time of a surplus of stocks. With regard both to the matter of assessing inventories, and the more general issue of trying to catch the drift of the market in the long run, Keynes could rely on a wide range of sources of information, including journal articles, informal letters circulated by Keynes's broker, Buckmaster & Moore, and miscellaneous data derived from private correspondence with other authorities in the field. Between 1923 and 1926 Keynes adopted the figures of 'visible' supply reported by A. Strauss & Co. As from 1925, however, he began to doubt this source of information, as it included no accurate analysis of the 'visible' supply that was 'afloat' (and therefore not immediately available for consumption), and because it lacked an estimate of the large accumulations in Southeast Asia—or, at least, of their trend variation. Accordingly, from 1927 onwards, in the *Memoranda* Keynes made reference to the London Metal Exchange definition and figures of visible supply, though not without adding a host of further qualifications of his own.

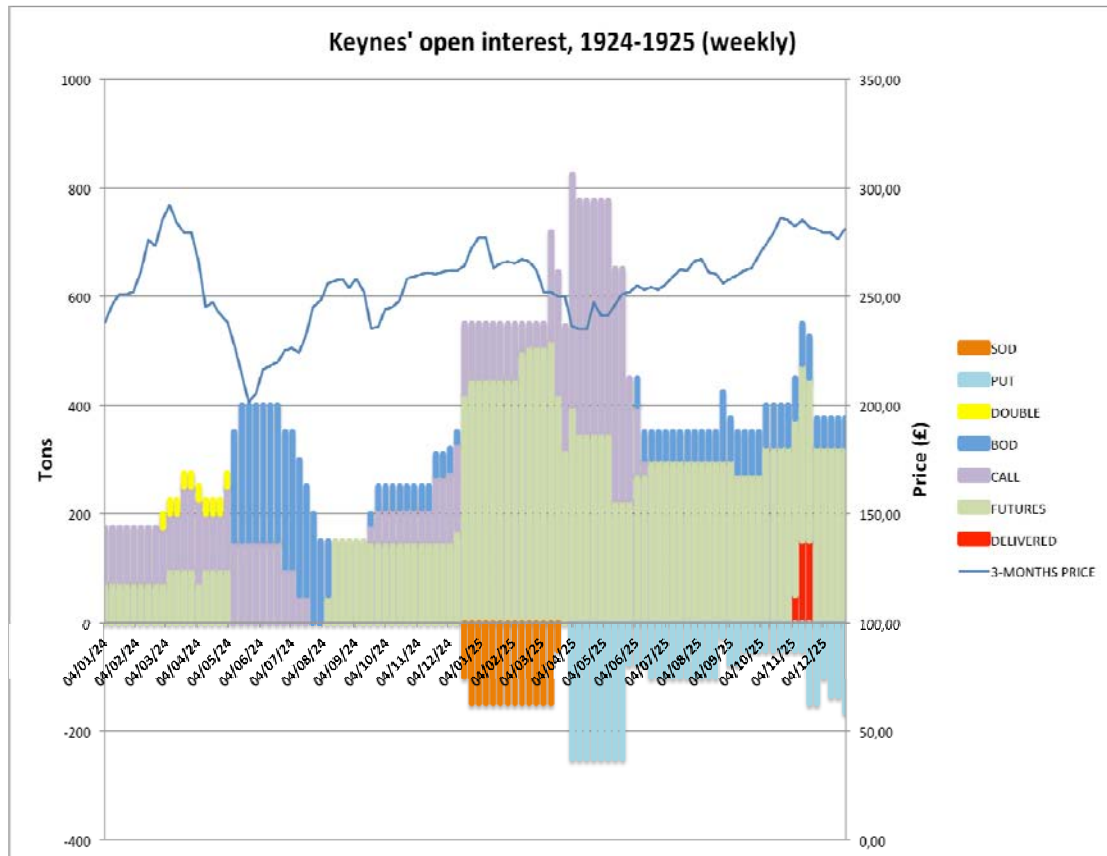
One episode that prompted Keynes's efforts in refining his assessment of stocks was the emergence of a backwardation in the tin market after a long period of contango, due to surplus stock, which had lasted until the Autumn of 1925. At that time Keynes began to share the general opinion of a tin 'famine' in the very long run and singled out tin as the commodity for which an increase in production was the least probable in the near future (CWK XII: 359-60). In the end new elements came to be known which progressively brought to an end the period of strong bullish expectations and by 1928 the trend in prices fully reverted.

Now let us look more closely at his trading behaviour in 1924-1925. Figure 1 shows the weekly account of Keynes's open interest according to his ledgers, recording date and price at which each position was opened and closed, the quantity purchased or sold and the type of contract. For each future contract the price is given per ton, while for

¹⁰ This was a scheme 'designed to take over 19.000 tons of surplus tin off the market in order to raise the price to £240 per ton' (Eastham 1936: 18).

options we have the purchase price and the strike price. The price of the typical three months future has been derived from the Times on line Archives as recorded for each Friday.

Figure 1



Source: Cavalli and Cristiano (2012).

Keynes’s tin position began to rise with a series of purchases (call options, BOD and futures) in March 1924. In May 1925 he took a share in a private pool which had been formed to prevent price from falling; from the correspondence we know that Oswald Falk, Rupert Trouton and Jack Budd (son of Cecil) were part of it and, from the ledgers we can infer that Keynes’s participations lasted until October 1925, while it is likely that the pool was dissolved at the end of that year.

The cycle of investment initiated in March 1924 resulted in heavy losses, which were only partially offset by the rise in prices that began in August 1924. Although the loss on the position opened in March was over £3000 early in the summer, Keynes kept his long position practically unchanged until November 1924. This move earned him a

substantial recovery before the end of the year, when he decided to increase his position to an unprecedented level. However, the higher risk associated with this enlarged position, along with the price volatility experienced so far, suggested to Keynes (and, probably, to his broker as well) a more prudent strategy of combining purchase of future with SOD contracts. Possibly also as a consequence of his concern about the true level of inventories, when adding a series of purchases throughout December 1924, he hedged each new long position with a corresponding short position of half the quantity purchased. In order to hedge the amount of futures purchased Keynes bought options and sold SOD (traded at discount price) which that he eventually exercised in March. His expectations of an upward trend in prices was frustrated by the short-term events, but the SODs proved decisive in putting a limit to his losses. In fact in March 1925 tin future price turned out to be not only lower than in December, but lower than the discount price at which SODs were traded.

Cavalli and Cristiano, who have studied Keynes's investment in tin over the whole period 1921-30, have found that

Keynes made appreciable profits between May and December 1925, in a context of steadily surging prices, possibly influenced by the pool itself. Then some minor losses came during a momentary fall in prices in the first half of 1925. Finally, in the ensuing period the boom the market had been expecting eventually took place, with prices reaching their peak between September and October 1926. Meanwhile, favoured by the period of backwardation, Keynes began to take delivery on some of his futures and to stock tin in the LME warehouses, thus moving part of his operations onto the spot market. By means of this technique, Keynes was able to extend the time horizon of his speculations beyond the three months of a standard future contract, with substantial returns in most of the cases. By the end of this crucial period, Keynes aggregate profit had topped £17,000, thanks mainly to the gains made during the 1926 boom, but, as soon as prices fell off their peak, Keynes started losing money. (2012: 74)¹¹

We can conclude by saying that his speculation in tin showed a combination of strategies, based on a guess about inventories and 'inside' information, where hedging his position in future both in the cash and the options market played a huge part.

4.2 *Wheat*

An important characteristic of the wheat market was the huge amount of information at the traders' disposal. All the statistics and data related to the volumes of production by country, the net imports, the carry-overs, the shipments throughout the

¹¹ It must be remembered the double nature of the LME which was both a hedging market and a delivery market.

world, the different qualities of wheat, even the weather and soil conditions in different areas, as well as reports containing prospects, analyses, and forecasts, were regularly published by many institutions. Thus, as far as information is concerned, this market was near to being a ‘perfect’ one in the sense that everyone involved in trading—farmers, merchants, owners of grain elevators, speculators, and even consumers—could have access to the information they needed to make their decisions.

The most important source of information used by Keynes was George Broomhall’s *Corn Trade News*, a specialized journal providing statistics, reports, and forecasts not only on production, shipment, and prices of wheat, but also on futures trading. The second important source of information, particularly for the North American markets, lay in official reports published by leading American and Canadian institutions, while the third source consisted in information and suggestions from an American correspondent of Keynes, the banker Walter Case.

This was a market that saw great price volatility. Prices, which had risen between 1921 and 1924, declined slowly in the second half of the 1920s, sharply in the 1930s in connection with the Great Depression (Table 1; see Foresti and Sanfilippo 2012).

**Table 1: Averages annual prices of imported wheat in United Kingdom, 1922-38
(in shillings per quarter of 480 lb.)**

Crop Year	Manitoba No. 3	Arg. Rosafè	Australian
1922-23	43.1	44.5	47.8
1923-24	43.5	44.1	46.8
1924-25	61.2	60.10	61.2
1925-26	55.3	54.7	57.9
1926-27	53.11	52.5	55.0
1927-28	50.8	49.6	52.4
1928-29	45.6	42.3	45.11
1929-30	45.2	40.3	43.6
1930-31	25.4	23.5	26.4
1931-32	24.10	23.8	26.3
1932-33	25.2	23.2	25.9
1933-34	24.6	19.5	23.10
1934-35	28.5	22.4	26.4
1935-36	30.5	28.9	30.2
1936-37	43.6	39.4	43.4
1937-38	41.10	38.2	37.7
1938-39	23.11	22.11	24.4

Source: De Hevesy (1940: 828).

According to Keynes, there were two fundamental reasons for the difficulty in matching demand and supply on wheat markets and, hence, in keeping prices stable: 1) the systematic excess of supply over demand, and 2) the wide fluctuations in supply. As he saw it, the former derived from the subsidies and tariffs implemented by governments to support domestic wheat prices and counteract the fall in the purchasing power of producers and farmers, and from the stimulus to increase production resulting from occasional years of high prices. The section of wheat of the *Memoranda* five times out of seven opens with the following comment:

Wheat is a baffling commodity to the compiler of comparative stock statistics, because it is a seasonal crop, coming from many different sources, and harvested at different times of the year. As in the case of other commodities, the statistics regularly available month by month are those of 'visible' supplies in 'second hands'; but, owing to the large amounts held on farms and elsewhere 'out of sight' and to the seasonal irregularity of supply, these figures are moderately useful in the case of wheat. (CWK XII, *passim*)

In the third, fourth and fifth *Memoranda* the 'particularly unsatisfactory' is substituted for 'moderately usual' as to signal increasing uncertainty on the level of stocks.

The great volatility of prices made wheat a perfect market for dealing in futures, for both hedgers and speculators.

The main markets in which Keynes operated in the decade 1925-35 were Liverpool, Chicago and Winnipeg. These markets presented different characteristics, not only in terms of geographical location. Chicago and Winnipeg were close to large wheat-producing and exporting areas. Hence, futures contracts on these markets, although specified in terms of generic contract wheat, were related to the specific qualities of the wheat produced in North America (in particular, Hard Winter and Spring wheat in Chicago, and Manitoba wheat in Winnipeg). Moreover, both these markets were endowed with a well-developed storage system (Santos 2006). As a consequence, carry-over costs had a major role in determining the difference between spot and futures prices on these markets. On the other hand, Liverpool was the chief port of arrival for wheat imported from all over the world and bound not only for British markets but also for Continental ones. This market was not equipped with capacious storage facilities, but relied on arrivals from various producers all year round (Working 1942). The difference between spot and futures prices was then influenced more by the succession of arrivals, and, hence, by the conditions of production, than by the carrying costs of stocks. Continuity in arrivals was guaranteed by the succession of harvests from the southern to the northern hemispheres along the year, starting from Australia in October

to conclude in the UK the following September. Each market dealt in futures of various maturities, broadly corresponding to the timing of harvest and delivery to the market of tenderable wheat.

Keynes's ledgers record trading in wheat futures from 30 December 1924 to 3 August 1926 and from 17 October 1929 to 9 December 1935, with a gap of three years which is not easy to interpret.

His activity was characterized in the first cycle of investments (1925-6) by a series of short sales, both on the Winnipeg and Chicago markets, which brought to him some profits. During this period the wheat market was quite stable and his was able to anticipate a slight decrease in prices, looking at the increasing accumulation of stocks that started in November 1924 and lasted for the first semester of 1925. (See CWK XII: 401)

As far as the second period is concerned (1929-35) Keynes's investment strategy appeared more complex and sophisticated. He traded at the same time on four markets (including Buenos Aires), adopting a different strategy according to the specific conditions of each market-place (see Foresti and Sanfilippo 2012).

Indeed, it appears that Keynes carried out three different types of trading alternatively: (1) long commodity futures, aimed at earning the normal risk premium; (2) time-varying long commodity futures, so as to have larger exposures when the premium is large relative to the risk, and smaller exposures when the premium is small relative to risk. (This strategy might also involve closing a position on one specific market and/or commodity if the risk premium was too low compared to other investments); (3) outright speculation on future prices or price differentials, when the market is deemed to be making a mistake. (This strategy would suggest assuming a short position rather than a long one, or hedging a long with a short position on a different market; i.e., making a straddle).

A straddle is the combination of two opposite positions on two different markets (and possibly two different dates) with a view to closing the positions simultaneously, speculating on the price differential. One reason for a speculator to engage in a straddle may be the lower volatility in price differentials between two markets as compared with the volatility of prices on either market.

Only from 1935 onwards (at least until 1937, as shown in Fantacci, Marcuzzo and Sanfilippo 2010), we can observe a systematic prevalence of long positions, i.e., purchasing a certain quantity of wheat for a certain maturity and, as the maturity approaches, putting it forward to a later date.

We may conclude this overview by saying that speculating in metals—besides tin he traded heavily in copper, lead, and soft pig irons, as well as rubber—Keynes was dealing with simple and double options, which were exercised most of the time. They were a less expensive means than futures to make forecast about prices in the future and spot markets. It must be remembered that Keynes carried half of his portfolio on borrowed money, the margin requirements in his dealings in futures being at the lowest 20 per cent, and at the highest 30.¹² These forecasts were greatly dependent on information about stocks, both ‘visible’ and ‘invisible’, and the prevailing production arrangements (cartels, quotas and restriction agreements), which he sometimes worked out himself. In both aspects Keynes kept informed through his broker, Buckmaster & Moore, relying on the advice of friends associated with B&M, such as Rupert Trouton and Oswald Falk who had been his assistants at the Treasury during the First War World, and people in the tin trade.

As for his speculation in crops—besides wheat he traded heavily in corn and cotton—where options were not available in Keynes’s time, he had a combination of trading strategies, basing his decisions on the massive amount of information he collected on production and market conditions.

5. A change of view

In the *General Theory*, Chapter 12, the analysis of speculation marks a departure from Keynes’s previous views, as the following quotations show: ‘the term speculation [is appropriated] for the activity of forecasting the psychology of the market’ and it is distinguished from enterprise which is defined as the ‘activity of forecasting the prospective yield of assets over their whole life’. And Keynes adds: ‘As the organization of investment market improves, the risk of the predominance of speculation [...] does increase’ (CWK VII: 158).

Thus ‘speculation’ is no longer an attempt to gauge the ‘prospective yield’, on the basis of the fundamentals but a bet on a ‘favourable change in the conventional basis of valuation’ (CWK VII: 159). The conventional basis is of course average market opinion as described in the ‘beauty contest’ example, so gambling—as in the casino—rather than informed opinion is likely to account for ‘the success attained by Wall Street’.

In his speech to the Annual Meeting of the National Mutual, on February 20, 1938, Keynes made another comment in the same vein: ‘Speculative markets [...] are

¹² On margin requirements before the 1929 crash, see Rappoport and White 1994.

governed by doubt rather than conviction, by fear more than forecast, by memories of last time and not by foreknowledge of next time' (CWK XII: 238).

This explains why speculation does not promote price stability in those markets. Unlike the efficient market theory, according to which by buying low and selling high, speculators push up the low prices and push down the high prices, Keynes points out its possible destabilizing nature. The destabilizing effects of speculation can be described as a sudden and large increase in open interest positions, unrelated to new information about fundamentals coming to the market: futures prices go up if the increase is in demand (an increase in long positions) and down if the increase is in supply (an increase in short positions). So accumulated net long positions in futures, constituting as they do a bet that prices will rise, actually make spot prices rise. Conversely, accumulated net short positions would make spot prices fall.

In 1938 Keynes pointed out that for four commodities (rubber, cotton, wheat and lead) 'which are representative of raw materials marketed in competitive conditions, the average *annual* price range over the decade before 1938 was 67 per cent. An orderly programme of output, either of raw materials themselves or of their manufactured products is not possible in such conditions' (CWK XXI: 459).

The need to regulate commodity markets become imperative, to Keynes's way of thinking, on the outbreak of war, but this may also have reflected his changed view on the nature of speculation, which grew out of his experience as a speculator.¹³

Although Keynes had been advocating government storage of foodstuffs and raw materials since 1926, it was only in 1938 with his article on 'The Policy of Government Storage of Foodstuffs and Raw Materials' that he began to elaborate various buffer-stock schemes, as a means to stabilize prices. By the end of 1941 Keynes was fully engaged in work on a scheme for international buffer stocks, the so-called Commodity Control, drafting nine different versions between January 1942 and February 1943 (Hirai 2008).

The Fifth draft contains the buffer-stock plan that Keynes hoped to get through; it proposed the establishment of international organizations (named Commod Controls), which would deal in individual commodities and would be made up by representatives of the major producing and consuming countries and managed by independent specialists. The task of each Commod Control was to fix the initial basic price at a level reflecting the existing conditions and thereafter to make the price adjust as stocks exceeded or were short of the target rate by selling or buying at a price within 10% below or above the basic price. The finance necessary for the operations would come

¹³ The discussion of Keynes's Buffer Stocks scheme draws on Fantacci et al. (2012).

either from the profit deriving from the difference between selling and buying prices, or be supplied on the basis of arrangements between Central Banks or of overdrafts provided by the International Clearing Union (CWK XXV: 190).

The underlying principle of the plan was that: ‘to combine the long-period advantages of free competition with the short period advantages of ensuring that the necessary changes in the scale and distribution of output should take place *steadily* and *slowly* in response to the steady and slow evolution of the underlying trends’ (CWK XXVII: 126).

Why was the market mechanism unable to do this? Keynes’s answer was that:

The competitive system is in its ideal form the perfect mechanism for ensuring the quickest, but at the same time the most ruthless, adjustment of supply or demand to any change in conditions, however transitory [...]. If demand fluctuates, a divergence immediately ensues between *the general interest* in the holding of stocks and the course of action which is most advantageous for *each competitive producer* acting independently. (CWK XXVII: 131, emphasis added)

The reason why speculators may be unable to make the adjusting mechanism work *steadily* and *slowly*, generating a stable price environment, is that since there is no incentive to buy surplus stocks in a falling market, ‘it is safer and more profitable to await a further decline’ and long-term holding of stocks by speculators ‘can only be called into action on a sufficient scale by a drastic fall in prices which will curtail current output substantially and appears to be a long way below any probable normal cost of future production’ (ibid.: 132-3).¹⁴

Since it takes time to increase supply, speculators may act as amplifying factors in pushing up prices and stimulating ‘uneconomic and excessive output’.

6. Concluding remarks

In this paper I have endeavoured to analyse Keynes’s ‘extremely wide practical acquaintance’ with organized market as a way to understand his *practice* as speculator and his evolving *views* on speculation which eventually led him to argue against ‘unfettered competition’ and in favour of regulation in these markets.

He relied heavily on information relative to each individual market and commodity, weighing up the quality and reliability of that information through calculation of the relevant data, the advice of experts, and his own assessment of market conditions and of

¹⁴ This passage is reproduced verbatim from the 1938 article (see CWK XXI: 457).

other participants' opinions. The grasp of 'business psychology' became an increasing important element both in his investment strategy and in his views on speculation.

In the *General Theory* he made it clear that in his opinion 'the energies and skill of the professional investor and speculator are mainly occupied [...] not with making superior long-term forecasts of the probable yield of an investment over its whole life, but with foreseeing changes in the conventional basis of valuation a short time ahead of the general public' (CWK VII: 154).

On the inside cover of a booklet in which Kahn kept a record of his Stock Exchange transactions was penned the following motto suggested to him by Keynes in 1934: 'The principles of successful stock speculation are based on the supposition that people will continue in the future to make the mistakes they have made in the past' (RFK papers 15/1).

His own investment philosophy seems to have changed in the early 1930s, following heavy losses in the commodity market, the 1929 crash and possibly progress in his new theoretical developments which culminated in the *General Theory*. The role of informed opinion about the relevant data gave way to evaluation of market sentiment, conventions and herd behaviour. In the end the ability of the speculator rested, for Keynes, on individual judgment, as opposed to the average market view: 'My central principle of investment'—he explained in 1944 to a banker who was critical of his suggestions about how to manage Eton's finances—'is to go contrary to general opinion, on the ground that, if everyone is agreed about its merits, the investment is inevitably too dear and therefore unattractive' (CWK XII: 111).

In the case of commodity markets, which had an important role in sustaining or depressing the level of effective demand worldwide, Keynes became increasingly worried about the effect of adverse or excessively optimistic markets opinions and ever more apprehensive of the dire consequences of trusting them to ensure the smooth working of the economic system. With the primary commodity bubble close to bursting,¹⁵ it is high time for this, among so many other insights of Keynes which have proved relevant in the present crisis, to be taken seriously and acted upon.

¹⁵ Standard & Poor's (S&P), in a 22-page report issued on June 1, 2011, entitled *The Potential Risk of China's Large and Growing Presence in Commodities Markets*, warns that record high commodity prices may represent an unsustainable bubble, subject to sudden correction, especially if the Chinese economy is hit by a significant deceleration or downturn.

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