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KEYNES AND THE INTERWAR COMmodity OPTION MARKETS*

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JEL Code: B26; B31; N20; N50
Keywords: Keynes; speculation; commodity options, interwar financial markets

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As regards the principle of investment in Commodities, I know the conventional view. But a pretty long experience convinces me that so far as risk is concerned they are much safer than anything else, since of course intrinsic value remains and one is always protected from catastrophic losses. Held with obstinacy they are, in my experience, far the safest form of investment.  

(Keynes Papers, PC/1/5/89, 1938-39, quoted in Holder and Kent 2011: 5)

1. Introduction

In the first quarter of the 20th century options began to be widely employed in the main financial centres in Europe and the Unites States for trading in spot and futures markets. From 1921 on, Keynes embarked upon investment in these derivatives mainly— but not exclusively - in the commodity markets, showing a true fascination for this method of speculation. This type of financial investment he pursued mainly in the 1920s, with only a few operations undertaken during the 1930s. The option markets in which Keynes traded were metals, and in particular copper, lead, spelter and, especially, tin. Besides metals, Keynes dealt in options also in other commodity markets, such as rubber and linseed oil, currencies and sparingly in ordinary stocks and government securities.

In this paper we offer a reconstruction of Keynes’s speculative activity in commodity options drawing on the archival material kept in the Keynes Papers held at King’s College, Cambridge. This reconstruction is, to the best of our knowledge, entirely new to the literature. The main sources sifted through are: Keynes’s ledgers, the weekly statements of the Tilton Company (set up in 1926 for fiscal purposes) and the correspondence between Keynes and his broker, the Buckmaster & Moore firm, and in particular with Oswald Falk and Rupert Trouton, associated with it. These sources contain information about quantities, strike prices, types of options, premium, margins, commissions, profits and losses (net and gross). While more work is needed to gain a full understanding of the working of the commodity options at the time, we hope that our investigation into Keynes’s dealings in options will also contribute towards research in that direction. As it is, the scope of our paper is much narrower: our aim is to provide an analysis of this particular aspect of Keynes’s investment behaviour, investigating his capacity to predict market trends and offering a preliminary assessment of his performance.

1 The secondary literature on option markets in the 1920s is scanty. We can refer the reader to Poitras (2008) and Mixon (2009, 2011), neither of whom specifically address aspects of commodity option markets.
2. Keynes’s Investment Activity: an Overview

In Keynes’s life-long investment activity the year 1919 represented a watershed. Before that year (and since 1905) Keynes had operated almost exclusively on his own account and on a very modest scale. His income per annum remained low throughout the entire period: up to the fiscal year 1914-15 it was below £1000, mainly accounted for by the revenues deriving from his academic activity (about 80% of his total income) (see Moggridge 1983, CWK XII: 2, Table 1). Things started to change the year after, when his investments in securities began to increase (ibid., CWK XII: 4, Table 2) as his income rose, touching on £1300, only 27% of which deriving from his academic activity. But the turning point in Keynes’s revenues occurred in 1919-20, when his yearly income reached a peak of £5000. This exceptional rise was evidently the result of the publication of an extraordinary successful book, *The Economic Consequences of the Peace,* which explains why his academic and publishing activity once again came to constitute the main source of his total income over these two years. This happy circumstance - which afforded him a revenue four times higher than that of the previous two years - together with the restoration of the financial markets after the end of the war, may explain why Keynes started to engage in speculation in this very period, operating mainly through futures contracts, first on the foreign exchange market, and then on the commodity markets, on such a scale and with such regularity as he had never ventured upon before.

Subsequently – having acquired some experience operating on his own account – Keynes went on with his speculative activities, starting to operate also on behalf of others, mainly friends at the beginning (Moggridge 1983: 5) and, successively, also institutions and companies. He invested in association with Oswald Falk, who was one of his former colleagues at the Treasury and partner of Buckmaster & Moore, his broker. From 1923-24 onwards the main source of his revenues became his professional investment activity while his academic and publishing activity played a secondary part (see ibid., CWK XII: 2, Table 1).

Although his speculations on the foreign exchange market at the beginning of the 1920s brought him some – not negligible – losses, by the end of 1922 these losses were completely recuperated, especially thanks to his successful speculation in the commodity futures markets (metals and cotton) and, to a lesser extent, in securities. In fact, taking Keynes’s investment income by source (ibid., CWK XII: 12, Table 4) we observe that starting from

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2 Since then and during the 1920s his yearly income settled at around values ranging from about £4000 up to more than £6500 in 1926-7.
3 The book was first published in England at the end of 1919 and just one month later in the United States. It was immediately a great success: 60,000 copies were sold in the first two months and over 100,000 by the end of July 1920 (Moggridge 1992: 335).
4 First of all King’s College, where Keynes was appointed First Bursar in 1924, but also the National Mutual Life Assurance Society, Provincial Insurance Company, Independent Investment Trust, A.D. Investment Trust, P.R. Finance Company, where he was on the Boards.
5 On 31 December 1922, in fact, Keynes’s net assets were over £21000 (see Moggridge 1983, CWK XII: 11, Table 3).
1922 and up to 1930 it was his speculative activity in commodities that yielded a greater contribution than his speculation in currencies and dividends or capital gains (denominated both in dollar and sterling) deriving from shares and securities. Accordingly, speculation in commodities represented the main debt source in 1925 and 1928, when his investments went in the wrong direction. Early in the 1930s, the pattern of Keynes’s portfolio changed and the main source of his investment income was lay in capital gains and dividends. 6

From these data clearly emerges the centrality of commodity investments in Keynes’s portfolio in the 1920s. He began the decade with a loss, with a negative income amounting to £10000, deriving from his unsuccessful speculation in foreign exchange, while his speculation in commodities had yet to get underway. Yet in 1921 things were different: his gains from speculation in currencies almost equalled his losses from the previous year but at the same time he gained approximately £2000 from his speculation in commodities.

From 1922 on Keynes reduced his speculative activity in currencies and in parallel increased his investment in commodities (metals and crops). 7 From 1923 on (and up to 1928) the speculative activity in commodities (including his investment in options) contributed to his income by something between 55% and 65%, more than all his other activities together. This period of prevalent investment in commodities practically stopped at the end of the 1920s, after the great losses of 1928 and those following the 1929-30 crisis. In fact, although his investment in commodities spanned over the whole of the 1930s - and up to 1939, the year in which they finally ended because of the outbreak of the war -, as from 1931 the main source of Keynes’s income (and the main cause of his losses) became shares and securities. In 1936, for example, dividends and capital gains (both in dollars and sterling) accounted for 75% of his total investment income, but commodities only for 17%. After 1936, and up to 1945, the largest portion was represented by the capital gains deriving from securities denominated in dollars.

According to Moggridge (1983: 15), the financial setback that Keynes experienced at the end of the 1920s (when securities prices collapsed in September-October 1929) had its origins in the previous years and was mainly due to his speculative activity in commodities, and in particular to the combination of three factors: his long-term holdings, his ample recourse to loans in order to fund his investments and his short-term speculation. In fact, Keynes’s investment activity in commodities in the 1920s was characterized by a highly speculative profile, especially from 1922-23 onwards, when he started to resort to sophisticated derivatives, like options. As from January/February 1922 the options Keynes bought were in copper and tin, and, immediately after, also in spelter and lead, as we shall see. In 1923-24 Keynes extended his investment in options also to other commodities, in particular rubber and linseed oil. During the 1930s Keynes’s investment in commodities was

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6 For instance, in 1937 capital gains in dollars played the major role (and represented his main debt source in 1938, when he came in for heavy losses), which testifies to the marked increase in his financial investment in US securities.

7 Indeed, in that year the income deriving from his investment in commodities almost was doubling that deriving from his speculation in currencies.
characterized mainly by future trading while his recourse to commodity options was limited only to a few operations in tin.

3. Keynes’s Investment in Commodity Options: a View from his Ledgers, Statements and Correspondence

Keynes’s ledgers tell us that his first operations in commodity futures were in American cotton, and in particular a few long positions in February 1921 (SE/11/2/4), while his intention to begin to speculate in futures on metals is documented by a letter which Oswald Falk wrote to him in September 1921:

‘If you want to deal in tin or copper I think we ought to give you a chance, though it can only be on a small scale, say up to £ 10,000 worth of the two combined. A 20% margin should be enough at these prices’ (16 September 1921, SE/2/1/128).

In fact, just three days later Falk informed Keynes ‘I [Falk] have bought for you 50 tons of copper and 45 of tin’ (19 September 1921, SE/2/1/134).

Just two months after this opening of a few long positions in tin and copper futures, Keynes ventured in dealing in metal options. This happened after a brief by his former pupil at King’s, Rupert Trouton (at the time also working for Buckmaster & Moore) who, in a note probably written in the autumn 1921, explained how they worked. Trouton wrote:

‘Metal Options

Options are of two kinds.

i) an ordinary call option at the moment is about 25/- [shillings] for copper and about £ 5 for tin. The option entitles the purchaser to exercise the right, by notification 3 days before the end of 3 months, to take up the metal at the price on the option contract, which is the price when the option is purchased, of 3 months forward. If the spot copper is £67 and

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8 For analysis of Keynes’s activity in cotton futures, see Cristiano and Naldi (2014).
9 The classification number is given according to the Catalogue of Keynes Papers, King’s College, Modern Archives, Cambridge.
10 These prices were respectively £156 and 10s for tin and £69 and 5s for copper (SE/11/2/7).
11 The purchase of these two contracts is also registered in Keynes’s ledgers (SE/11/2/7). The total value of the two contracts amounted to £10505, £7042 and 10s for tin and £3462 and 10s for copper.
12 From Keynes Papers we also know that in those times option contracts were not available for all the commodities exchanged in the UK markets. In December 1921, Buckmaster & Moore, for example, explained to Keynes that according to the Cotton merchant firm Newall & Clayton based in Liverpool: ‘there is very rarely a transaction done in [cotton options] here now, nearly all the responsible people in this market refuse to trade in them, as they are not recognized by our Association or in a court of law. We accordingly prefer not to deal in them on your behalf” (5 December 1921, SE/2/1/143). In fact, we have found evidence of only one single operation of a put option in American cotton bought on the 8 April 1925 (SE/2/5/75 and 77). In a letter dated 10 March 1924, once again, Buckmaster & Moore explained to Keynes, who evidently had enquired about this possibility, that sugar options were not dealt with in the London market (SE/2/4/28). Whereas, in the same years, we have evidence that Keynes also traded in stock and government securities options (letters from Buckmaster &Moore to Keynes, 25 April 1923, SE/2/2/246; 17 March 1924, SE/2/4/35). For a detailed explanation of the working of the option market in government securities see the letter from the broker firm Capel Cure and Terry to Keynes, 25 May 1922 (SE/2/2/7).
forward £68 then the 25/- entitles the purchaser to take up copper at the end of three months for £69.5.0\(^{13}\) (including his initial expenditure on the option).

ii) The type of option which includes “buyer’s option to double” is as follows. In return for a sum at present about £3 over forward price for tin the buyer purchases tin much like the ordinary forward purchase but has the additional right to double the amount he takes or not, as he pleases, having to notify 3 days before the end of the 3 months what his intention is. This option really amounts to a combination of two things: an ordinary forward purchase and a call option. Instead of the call option being arranged separately it is attached on to an otherwise normal forward purchase.

For some extraordinary reason the price of a call option does not always equal the surcharge when there is “buyer’s option to double”.

At the present moment the option to double is purchased for 25/- extra in the case of copper and £3 in the case of tin while the call option is 25/- for copper and £ 5 for tin’ (SE/1/2/126-7).

On December 1st, 1921 we have the record of the first transaction in copper options undertaken by Keynes, followed by more in the following three months, which were not exercised (SE/11/2/7). On January, 19\(^{th}\) he tried a buyer’s option to double (BOD) on tin that he did not exercise because at maturity the price dropped.

By mid-1922 Keynes had become more confident about the working of the options market and remained very active in it from 1922 to the early 1930s, with the only exception of 1928-1929, when his dealings were significantly less frequent. After 1932 he reduced his exposure in metals, both in futures and, even more drastically, in options. In 1933 he dealt only in tin options (TC/4/3/1-16), while in copper he invested only in futures contracts.\(^{14}\) In the same years Keynes concentrated his speculative activity in futures crops (corn, cotton, wheat, maize) and other commodities such as rubber, lard, cotton oil, whale oil and linseed oil (TC/4/2-3).

Keynes was attracted to the option metal markets by the possibility to speculate on price movements with a financial device that appeared particularly flexible. The options in which he usually traded had 3-month maturity, but occasionally it was longer (e.g. 6 months or 9 months on copper and spelter, SE/2/2/170, 179).

Before analyzing Keynes’s dealings, it is useful to consider the types of options available in the London market and the various costs involved.

Besides ordinary call and put options other types of instruments were available. First of all the double option, that was a combination of a put and a call, giving the right to exercise only one of the two at the expiration date.\(^{15}\) This type of option was quite expensive and was used when prices were particularly volatile since the holder could gain not by anticipating the direction of price movements but by the size of changes.

\(^{13}\) We remind the reader of the old British money system: 1 pound=20 shillings and 1 shilling=12 pence.

\(^{14}\) His investment in the lead market ceased completely in the 1930s, while in spelter Keynes bought only two double options in October 1934 for hedging his exposure in futures (TC/4/3/52).

\(^{15}\) This type of option at that times was also called ‘straddle’ in the US (see Smith 1922: 46) or ‘put-and-call’ in England (see Higgings 1896[1906]: 7).
A very peculiar type of contracts - as we have seen from the letter by Trouton - were the BOD and the SOD (seller’s option to double), which was an ordinary sale of a future with the purchase of a put option attached. If the amount was not doubled at the expiration date (i.e. the option part was not exercised) these contracts worked in all respects as standard future contracts, although they had been negotiated at a price which was higher (in the case of BOD) or lower (in the case of SOD) than the standard future price in order to include the option premium.

All these types of options, like the standard call and put, were of the European type, namely they could be exercised only at maturity.

The price of the option changed according to the type of option and the metal traded. At this stage of our investigation we were unable to detect any option pricing formula consistently followed and we had to rely on the information scattered in the ledgers and correspondence, which seem to indicate the rule of thumb of a fixed amount (ranging from £1 to £3) added to the three-month future price of the metal.

The cover necessary to carry a position with a broker varied according to the instrument and the underlying commodity. 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’ (SE/2/2/25).

The commission charges in particular merit careful attention, since they played an important part in determining whether each dealing was at profit or loss.

When the option was exercised and the underlying future contract either bought (in the case of a call) or sold (in the case of a put), Buckmaster & Moore charged commission of 0.1% on the value of the first transaction, namely on the strike price times the quantity involved and 0.1% on the value of the second transaction, namely the market price of the metal traded times the quantity involved. To this, the metal broker's commission, varying

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16 For example, on 28 February 1923, Trouton explained to Keynes: ‘Options are becoming much more expensive. The Call option on Copper is 32/6 bid; the double option on Copper is 60/-; the BOD on Copper is at least £1 over three months, probably more like 25/-. The double option in Tin is £11.10/-; the BOD in Tin is £4.10 over three months and the three-month Call in Tin might be got at £6’ (SE/2/2/181).

17 It has been rightly pointed out that the pre-20th century option markets literature focus is the evaluation of historical option prices with modern methods (Mixon 2011: 4). In fact “Option markets existed long before option pricing models. For centuries prior to the development of the Black-Scholes model, option buyers and sellers negotiated prices at which voluntary trade occurred” (Mixon 2009: 171). See also Sotiropoulos and Rutherford (2014: 10): “sophisticated option trading was possible long before the perfecting of the B[lack]S[choles]M[erton] pricing model in the 1970s on the basis of a knowledge spontaneously developed in a practical form in the everyday life of market participants.”

18 The metal brokers quoted in the statements and the correspondence are Vivian Younger and Bond, Budd, Candover.
approximately between 0.5% and 1% according to the metal, had to be added (see SE/11/2/90 and SE/11/2/9).

Here is an example drawn from the ledgers:

On March 17, 1922 Keynes bought a call option for 100 tons of copper at the strike price of £61 per ton, with expiration date on June 17. The price paid by Keynes was £137 and 10s. On June 15 he exercised the option, since the price at which copper could be sold was £61 and 15s per ton. The commission on the first transaction was 0.001x£6100, i.e. £6 and 2s, the commission on the second transaction was 0.001x£6175, namely £6.3s.6d. To this, it must be added a commission of 0.5% on the first transaction due to the metal broker, i.e. £30 and 10s. Thus the total commission charges amounted to £42.15s.6d.

So while the difference between the strike price and the market price at the time when the option was exercised times the quantity involved in the contract gives a positive difference of £75, when we compute the net profit by subtracting to this sum the initial cost of the option (£137) plus the commissions we get a loss of £105.5s.6d.19

In the next sections we will focus on the four markets in which Keynes was most active in his option trading: copper, tin, lead and spelter. For each commodity market we present an overview of the open interest of the various types of options he traded, followed by an analysis of the pattern of his option dealings and a breakdown of profits and losses.

In particular, for each of the four markets we present a weekly account of Keynes’s position in options (see Figs. 1a, 2a, 3a, 4a) according to his ledgers, where he recorded the date and price at which each position was opened and closed, the type of the option contract and the quantity involved. In the ledgers we find also the strike price, the total cost of the option (given by the premium times the quantity involved in the underlying future) and indication of the cases in which the option was let expire. The weekly time series of both the spot and the typical three-month future prices are derived from the Times on line Archives as recorded for each Friday, while for the strike price we do not have a weekly series, but only the entry recorded by Keynes himself in the ledgers.

Then, for Keynes’s dealings in options in each metal (see Table 2) we compute: a) the value of the gross profits, which are given by the price differential between the market price and the strike price times the quantity involved in the underlying futures for all the options exercised, while they are equal to zero for the options which were let expire; b) the value of the total net profits, resulting subtracting from the gross profits the total commission charges and the total costs of the options bought. Looking at the data in Table 2, it emerges that good price forecasting (testified by positive and high levels of gross profits) does not necessarily implies high net profits, just because of the great weight of all the transaction costs when buying and exercising the options.

Finally, a comparison between net profits and losses realized by Keynes in the four markets is provided, together with an appraisal of his investment strategies and behaviours.

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19 This is exactly the amount that Keynes’s registered in the ledger within square brackets as net profit deriving from this operation (SE/11/2/7).
4. Keynes’s Trading in Metals

In Keynes’s time the leading market for futures and options trading on metals was the London Metal Exchange (LME) which, established in 1877, had by the 1880s grown and developed as the most important organized world market, in particular for exchanges on non-ferrous metals, namely tin, copper, lead and spelter (Forrester 1931). The contracts usually traded had three-month maturity but longer maturities were also admitted. When Keynes entered this market in 1919 – dealings having just been restored after the end of the War – it was a period of disturbed trade to which many factors, common to all kinds of business, all contributed (see A History of the London Metal Exchange, 1958). First of all, there was the problem of readjustment of capacity, stock and prices, aggravated by labour unrest, political uncertainties and fluctuating exchange rates. A further source of trouble and instability, which was specific to metals trading, came from the drastic reduction in world demand that - unlike other commodity markets – took place just after the armistice, when armament requirements suddenly ceased. As a consequence, prices immediately began to fall from wartime levels, but this decline was brief and immediately succeeded by a remarkable inflationary boom. Prices reached a peak in February 1920 but collapsed again shortly after, in March and April, and remained low for the remaining part of the year, and indeed during 1921, basically because of an excess of supply and accumulation of stocks. Another source of trouble lay in the increasing integration of international metal markets, which made the London Metal Exchange in particular much more sensitive to events in the United States, like metal deliveries there or the selling policies adopted by the American producers, as a consequence of the accrued importance of the US as world producer (and consumer) and the corresponding decline of Great Britain’s role.

So, when Keynes started to deal in metals the general conditions of these markets were on the up-swing but highly volatile, thus providing ample scope for speculation.

Let us examine, more in detail, how Keynes operated in each metal market.

4.1. Copper

Keynes entered the copper option market at the beginning of December 1921, after initial unsuccessful purchase of one future copper contract. He would be active in that market until October 1924 (see Fig.1a), when he basically suspended his dealings in options, he resumed his activity with a small-scale operation in futures in the Spring of 1929 (SE/11/2/54) and again later in 1937 (February/April and August/September, TC/4/3/156-163 and TC/4/3/180-186).

Options were the contracts most traded in copper by Keynes, as measured by the number of positions opened (53). Most of these options were call (39), followed by double (7), BOD (5) and Put (2). (See Table 1 below).

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20 We have evidence only of another put bought by Keynes on March 15th 1929 (SE/11/2/54).
21 Since one of these two puts - the one bought on October 16th 1924 – was not exercised (SE/11/2/29) and the other one was traded only in 1929 (see fn. 20), we can conclude that in the period considered here Keynes did...
Table 1. Keynes’s investment in metals by type of contract, 1921-1939

<table>
<thead>
<tr>
<th></th>
<th>Tin</th>
<th>Copper</th>
<th>Spelter</th>
<th>Lead</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Futures</td>
<td>166</td>
<td>14</td>
<td>11</td>
<td>37</td>
<td>228</td>
</tr>
<tr>
<td>Number of Options</td>
<td>123</td>
<td>53</td>
<td>22</td>
<td>64</td>
<td>262</td>
</tr>
<tr>
<td>Call</td>
<td>72</td>
<td>39</td>
<td>20</td>
<td>60</td>
<td>191</td>
</tr>
<tr>
<td>BOD</td>
<td>15</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>Double</td>
<td>10</td>
<td>7</td>
<td>2</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>Put</td>
<td>19</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>SOD</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
</tbody>
</table>

Keynes’s timing of trading and choice of instruments reveal that he had bullish expectations until April-May 1923. His earlier bullish expectations in the first year were supported by the evidence of depressed prices for the previous two years as well as the data he had collected for his *Memorandum on Stocks of Staple Commodities*, which showed that the available supply of copper was decreasing - gradually, but steadily - while “consumption has remained comparatively steady” (CWK XII: 283).

Unfortunately, these expectations were to be disappointed, since in the early months of 1922 futures prices dropped from £66 (January) to £58 (between March and April), to rise again in May and remaining around the £63-64 level throughout the year. In January 1923 there was a reversal of the trend with a peak of £74 in April, followed by a decline which persisted in the following year, reaching a low of £62 in May 1924. From October 1924 and up to January 1925 the prices increased again, followed by a downward trend which reversed only at the end of 1927.

Keynes’s strategy in copper options was threefold:

1) long position in calls, up to October 1922. Notwithstanding the falling trend of prices, he was able to exploit the volatility in his favour, making a modest gain;

2) long position in calls and BOD, up to March 1923. Since the price trend was upward in the first quarter of 1923, this strategy paid off and Keynes was able to exercise the call and the BODs in a bull market;

3) hedge of long positions in futures with doubles, which were exercised as put. Keynes used this strategy between March and August 1923 and between March and June 1924.

An example taken from his operations in April-July 1923 (SE/11/2/19) can help to clarify Keynes’s investment behavior in the latter case. On April 16th Keynes opened a long position with two 3-month futures contracts of 75 and 125 tons at the price respectively of £74 and £74 2s 6d. The same day he bought a double option of the same maturity and total not trade in copper put options. Furthermore, in neither case were put options associated with long positions in futures contracts for the purpose of hedging.
quantity (200 tons), with a strike price of £74, and premium equal to about £3 8s per ton, for a total cost of about £686. According to our time-series drawn from the Times online Archives, on April, 13th the spot price came to £73 5s, while the 3-month future price was £74. Keynes’s behaviour reveals bullish expectations for the following 3 months but at the same time he adopted a hedging strategy - against a possible drop in prices - buying a double option. Near to maturity Keynes’s bullish expectations were disappointed. Indeed the spot price on July 13th fell to £65 12s 6d. Keynes exercised the double option as a put, thereby exactly offsetting the losses deriving from the liquidation of the two futures contracts. On these he came in for losses equal to the difference between future and spot price times the total quantity involved, i.e. £1800, which is exactly equal to his gain coming from the exercise of the put option. This is the reason why in the ledger (SE/11/2/19) Keynes links together the two futures contracts with a curly bracket and the double option writing ‘offset’ beside, and recorded losses only of £193 (equal to the commissions).

As for Keynes’s performance in copper options, from the ledgers we learn that the period in which Keynes’s investment was most successful was around March-April 1923 (SE/11/2/17), while in the following year he bore losses for an amount almost equivalent to the profits previously made (SE/2/11/24 and 29).

4.2 Tin

Tin was the commodity most traded by Keynes. He entered the market in September 1921 and carried on trading in it almost uninterruptedly until 1939, when all his commodity dealings were forcefully suspended due to the outbreak of the war. Between January 1922 and July 1929 he was very active in options, alongside large exposures in futures; he then suspended all trading in this market for a year and a half and resumed it in April 1930, continuing until August 1931; he traded options occasionally again between April and June 1932 and between January and April 1933, when he left the tin option market (see Fig 2a). He went back twice a few years later, between June 1936 and January 1937 and between April 1938 and April 1939, taking up positions only in futures (TC/4/3/124, 138, 216, 257).

When Keynes began trading tin options, futures prices had been rising since he first entered the market, and from £154 in February 1922 they had reached the £181 level by October 1922, with ample oscillations around the trend. By March 1923 they had climbed to the £225 level, suddenly reverting first to a declining trend, which bottomed at £182 in August, and then rising again to £292 in March 1924. From then on they fell with wide oscillations to £241 in May 1925, but quickly climbed back to the previous year’s figure and peaked at £300 in October 1926. They remained around that level until the middle of 1927 and then began to decline steadily, reaching £204 in July 1928. When Keynes resumed his option dealing in April 1930, future prices were oscillating around £160; when he left the market they were down to £110. In the last two periods of his activity in tin options, prices were around £107 in mid-1932, but by April 1933 they had gone back to the £150-160 figures of ten years before (see Fig. 2a).

Keynes realized pretty soon that tin was a metal with high price volatility, which made it very difficult to predict both its trend and deviations from it. The reasons he gave were
twofold: a) tin mining and consumption of smelted tin were highly inelastic, while demand for stocks became highly elastic as soon as they increased from a low working minimum; b) reliable information on the level of existing stocks was lacking. It is not surprising, therefore, that Keynes’s expectations were formed mainly from guesses on the level of “visible” and “invisible” stocks, besides forecasting the level of production and consumption on the basis of the data available. Moreover, as explained by Cavalli and Cristiano (2012: 65), ‘tin represented a very special case among staple commodities. In itself, the very low level of tin stocks, usually below one month consumption and sometimes as low as ten-day consumption, made the tin market rather susceptible of manipulations, because any small amount of privately owned stocks could suffice to exert an influence on prices. In addition, the very low level of daily tin turnover in the LME was a further element in favour of manipulation’. In fact, in the 1920s several “tin pools” were formed to control production and prices, and in May 1925 Keynes himself took a share (SE/2/5/95) in a private pool.

Although his price expectations were less firm and held with less confidence than in other investment decisions, Keynes stayed in this market longer and traded more than in any other commodity. He was bullish most of the early years, at least until 1924; during the ensuing falling trend of prices he tried to protect himself by taking up short positions both in futures and in options until July 1929. In the two subsequent periods he came back as a bull, with the exception of the period June 1931-October 1932, when he shorted futures (TC/4/2/86 and TC/4/2/147).

In the tin market Keynes experimented with all the derivatives available to him at the time and held the highest number of contracts: futures (166), call (72), put (19) BOD (15), double (10), SOD (7) (see Table 1, section 4.1 above). After 1925 he also took delivery of some of his futures and stocked tin in the London Metal Exchange warehouses, thus moving part of his operations onto the spot market.

His strategies with tin options - not unsurprisingly, given the high volatility of prices - were more complex than with the other metals. The most favoured combination - from the end of 1924 onwards - was going long with futures and calls and buying put options and SOD as a hedging strategy to reduce the risk of exposure to downswings. Exemplary of this strategy were the puts Keynes bought in the period from April to November 1925 (SE/11/2/35-38), corresponding exactly to the period (May-October 1925) that saw him in the Tin Pool. On this occasion Keynes’s behaviour seems to have been led by ‘insider information’, which induced him to increase his exposure in long positions, but also by caution, which led him to hedge his positions with put options. However, this time he turned out to be more cautious than necessary, given that the trend price was upward for the whole period and he let all the put options he had bought expire.

22 In the terminology of Keynes’s times they were stocks of tin actually not available for consumption, because “in transit”, or “afloat” (CWK XII: 468).
23 From the correspondence we learn that Oswald Falk, Rupert Trouton and Jack Budd (son of Cecil) belonged to it and from the ledgers we can infer that Keynes’s participations lasted until October 1925, while the pool was presumably dissolved at the end of that year.
On other occasions he hedged his long positions in futures and calls by buying and exercising SOD options, as in the period between December 1924 and March 1925 (SE/11/2/33).

On a few occasions Keynes followed a strategy of outright positions in put, as for example in the case of the put he bought on the 21st of November, 1928 for 10 tons at a strike price of £230, with expiration on 21st of February 1929, which he exercised at a profit on the 19th of February, when the market price came to £224 5s (SE/11/2/54).

In some other cases he hedged his long positions on futures with double options, exactly as he did on the copper option market (SE/11/2/21).

However, the pattern of high volatility which was typical of the tin prices, while providing scope for speculative activity, exposed him to the risk of heavy losses when the buying and selling timing did not match the price swings. Unfortunately, this is exactly what happened. So Keynes’s activity in the tin options was unsuccessful: he bore substantial losses throughout the whole period except for a few occasions in 1922 and 1926.

4.3 Lead

Keynes entered the lead option market in July 1922, after 6 months of holding a small long position in futures. He suspended his option dealings in November 1925 to resume them only a few years later, in January 1927 (see Fig. 3a). In October of the same year he gave up dealing in options and carried on with long positions in futures, which he closed in August 1928 (SE/11/2/50). Options were the contracts most traded by Keynes in terms of the number of contracts (64) but, contrary to his practice with copper and tin, in the lead market he traded only two types of options: for almost all the cases he bought calls, and only in four cases (all in Spring 1923) did he take up doubles (see Table 1, section 4.1 above).

Lead was a commodity, Keynes reckoned in the Memorandum on Stocks of Staple Commodities, of which “there were large post-war accumulations, and stocks of which have been continuously diminishing from abnormal level” (CWK XII: 268) and for which “output could not be expected to increase to meet the increase in demand, due to the scarcity of new sources” (CWK XII: 291). Although prices had been steadily decreasing in 1921, Keynes entered the market with clear bullish expectations; until the end of 1925 he believed that “stocks were very small”, but in February 1926 he came to the conclusion that “the high prices recently prevailing have called forth increasing production, sufficient to satisfy the high level of consumption” (CWK XII: 423).

In April 1922 lead future prices climbed to the £ 23-24 level and remained there until October 1922. The upward trend continued until January 1925 when they reached £40 and then slowly reverted with a low of £30 in May 1925; thereafter they increased to the range of £ 37 until November 1925 (see Fig. 3a). From then onwards the decline in prices was steady, reaching a low of £ 23 in August 1927.

Keynes’s strategy in lead options was threefold:

1) long position in futures and calls. This was his strategy in almost all his investment in lead options. We find it in July-August 1922, from November 1922 to March 1923, continuously from November 1923 to November 1925. This was indeed a highly leveraged
set of speculative bets on price increase, which Keynes won, when he had the timing right - which was often, but not always the case. There were several instances in which futures were sold at a loss and options were not exercised;

2) outright calls positions (mainly in the period August-October 1922 and again in January-September 1927);

3) hedge of long positions in futures with doubles, exercised as put (only twice in the period September/October 1923).

An example of this strategy is drawn from the ledgers (SE/11/2/19). On March, 27th 1923 Keynes opened a long position through a future contract for 200 tons with October delivery (a 7-month future) at a price of £27 17s 6p and the same day he bought a double option for the same quantity and maturity and with a strike price equal to the future price indicated in the future contract. When maturity approached, the lead market price was unfortunately lower than the price at which Keynes had bought his future contract: in fact, on October 12th the spot price came to about £26. On October, 16th Keynes exercised the double as a put and made up for the loss on the future contract, incurring loss only equal to the commissions. It is worth noting here that just after the exercise of this option the price started to increase. If Keynes had waited only ten days he could have had the chance to close his position on the future contract at a profit, since on October 26th the market price reached about £30. And the double could also have been exercised as a call.

Keynes gained huge profits in the first part of 1923 thanks to the options he had bought at the end of the previous year, but in the second part of the year he let almost all his call options expire, incurring substantial losses, especially from October to December (SE/11/2/17). Between June and December almost three quarters of all the options traded expired and some of those he exercised brought him further losses.

Although a great number of the options were not exercised and Keynes did not seem particularly successful in predicting the trend of prices, his investments in the lead option market turned out to be, on the whole, successful, thanks to two fortunate periods of huge profits over 1923-24 and 1924-25.

4.4 Spelter

Keynes entered the option spelter market in July 1922, with no previous position in futures, and withdrew in November 1923, to return to option dealing between October 1924 and June 1925 (see Fig 4a).

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24 According to Times series, on March 23rd the spot price was equal to £28.
25 Keynes in fact registered in the ledger losses of only £95 and linked the two operations with a curly bracket (as in the similar cases of copper and tin) writing beside the entries ‘offset’ (SE/11/2/19).
26 Probably Keynes acted on the assumption of rising prices, as he wrote in the Memorandum of 1925 that stock had been very small in the previous three years and ‘as regards lead supplies, the world has continued to live from hand to mouth’ (CWK XII: 378).
In the spelter option market Keynes traded almost exclusively through calls\(^{27}\) (see Table 1, section 4.1 above). Keynes’s bullish expectations in the months between mid-1922 and at the beginning of 1923 may have relied on his observation of the sharp reduction in stocks between January and July 1922, which continued also to the early months of 1923 (registered in the 1923 Memorandum, see CWK XII: 269, 292). In June 1924 Keynes realized that an inversion in the declining trend in stocks had occurred (CWK XII: 317, 340) and, in fact, between July 1924 and January 1925 (CWK XII: 405) there was a marked fall in the level of stocks of spelter.

Prices had indeed increased consistently from a level of £25 in March 1922 to a peak of £37 in November, followed by a series of marked upswings and downswings around a trend of increasing prices, which came to a halt in January 1925, when they reached the overall peak of £38, from where they steadily declined to a level of £12 by January 1935.

His strategy in this market had a similar pattern to that of his trading in lead. He bought outright calls consecutively from July 1922 to November 1923, when he switched to a long position in outright futures (SE/11/2/23). In October-November 1924 he returned to buy call options, and then combined long positions in calls and futures between March and June 1925 (SE/11/2/32 and 35).

Keynes was on the whole successful in his investment in spelter options, reaping gains in all the operations carried out in 1922 and up to February 1923, and suffering some losses only in the second half of 1923. Then, in January 1925, he obtained an exceptional profit of more than £1300, followed by some losses due to options that he did not exercise (SE/11/2/29).

4.5 Rubber and Linseed oil

Having acquired good experience in metals, and without abandoning his investments in these commodities, in 1923 Keynes extended his use of options also to other commodity markets, albeit on a very modest scale compared with his activity in metals. He started with a series of call options on rubber, bought between the end of May and June 1923 with deliveries from November to March, which in fact he did not exercise (SE/11/2/22). Similarly, in November 1923 he bet on an increase in prices by again buying some call options with April, May and June maturities, but, unfortunately for him, the expected rise did not occur, which is why in these cases, too, Keynes refrained from exercising the options.

Observing the general condition of the rubber market we learn from Keynes’s Memoranda that from 1920 to January 1923 there was a constant increase in stocks (the data provided by Keynes refer to the total supply outside plantations) due to quantitative restrictions imposed in the main producing countries (CWK XII: 385).\(^{28}\) In June 1923 the positive trend in stock

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\(^{27}\) We have evidence of only two double options bought by Keynes in October 1934, for 50 tons each (TC/4/3/52 and TC/4/3/66). These operations represented a hedging strategy because they were associated with the purchase of a future for the same total quantity (100 tons) and maturity (see also SE/11/2/57).

\(^{28}\) Reference is to the Stevenson Rubber Restriction Scheme, organized in 1922 and covering some of the most important producing countries like Ceylon and Malaya.
accumulation reversed, which may account for Keynes’s bullish expectations regarding prices, testified by the investment decisions he made in May 1923.\footnote{In the 1920s the increasing use of rubber in many products which were becoming of widespread consumption (like shoes or hoses) together with the initial development of the automobile industry (and consequently increase in demand for car tyres) could have justified Keynes’s expectations of an increase in prices due to a growing demand. What seemed to have happened, instead, was that the ‘Rubber boom’ induced many countries (especially in East Asia) to enter the market, creating new plantations and so increasing world production.} Unfortunately for Keynes this reduction in stocks was not associated with an increase in prices. In the following months and up to 1925 stocks continued to dwindle. Keynes insisted on buying call options also in November 1923 with April/June maturities but the expected increase in prices did not occur and he let the options expire. Subsequent to these unsuccessful investments in rubber options he continued his investment activity in the rubber market in the following years, especially from 1926 to 1928 (SE/11/2/46 and 52), abandoning option trading and assuming long positions in futures for large quantities.\footnote{His investment choices made in those years proved ill-founded because prices did not increase, and at the beginning of 1928 his losses on rubber futures contracts amounted to about £15,000, accounting for a substantial part of his total losses of that unfortunate year (Moggridge, 1983, CWK XII: 15). Keynes returned to investments in the rubber market during the 1930s but again only through futures contracts.}

In February 1924, Keynes embarked upon speculation in linseed oil options (SE/11/2/25). In this case Keynes appears to have had a bearish view of the market, which led him to buy put options. This expectation proved erroneous and he did not exercise the options. In October 1924 he decided to change his strategy, buying double options (up to February 1925), which may testify to a marked unpredictability in the price trends.\footnote{Surveying the price movements of linseed oil in New York we observe a marked volatility in prices, especially between 1923 and 1925 (see \url{http://m.research.stlouisfed.org/fred/series.php}).} In some cases these options were exercised as put to offset his long positions in futures (SE/11/2/25).

On the whole the results of his investments in options on the rubber and linseed oil markets were disappointing, which may explain why Keynes abandoned the use of options in these two commodities, while continuing to invest through future contracts.

4.6. Keynes’s forecast ability and performance

We can now try to evaluate Keynes’s ability as a speculator by first looking at the balance of profit and losses in his trading of metal options. He had a loss of £15288 in tin, a gain of £772 in copper, a gain of £2896 in spelter and a gain of £4815 in lead, for a total net loss of £6805.\footnote{Just to give an idea of the magnitude of these values, it is worth recalling that in the years 1921–1924 Keynes’s yearly total income amounted on average to about £5000 (Moggridge 1983, CWK XII: 2, Table 1).} (See Table 2 below).
Table 2. Keynes’s investment in metal options (in £)

<table>
<thead>
<tr>
<th></th>
<th>Tin</th>
<th>Copper</th>
<th>Spelter</th>
<th>Lead</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Profit</td>
<td>11959</td>
<td>13216</td>
<td>6248</td>
<td>21083</td>
<td>52506</td>
</tr>
<tr>
<td>Total investment in options</td>
<td>25671</td>
<td>10652</td>
<td>2661</td>
<td>13623</td>
<td>52607</td>
</tr>
<tr>
<td>Commissions</td>
<td>1575</td>
<td>1792</td>
<td>691</td>
<td>2645</td>
<td>6703</td>
</tr>
<tr>
<td>Net Profit</td>
<td>-15288</td>
<td>772</td>
<td>2896</td>
<td>4815</td>
<td>-6805</td>
</tr>
<tr>
<td>ROI* (%)</td>
<td>-59</td>
<td>7</td>
<td>108</td>
<td>35</td>
<td>-13</td>
</tr>
</tbody>
</table>

*ROI for each metal is computed as the ratio of total net profits (given by the total gross profits less the sum of the cost of the options and the commissions) to the total investment in options (given by the cost of all the option contracts bought in the investment period).

These data reveal first of all that Keynes’s investment in metal options was on the whole unsuccessful, which was not so much because he was unable to predict the trend of prices, but basically because when he got the timing right, commissions and costs in general outweighed the revenue.

A rough indicator of Keynes’s ability to predict market trends in each metal market is the exercise ratio, i.e. the percentage of the options exercised. In computing this ratio we have excluded the double options because of the intrinsic characteristic of this type of option, which is always exercised independently of the direction of price movements. So in the case of the doubles the *exercise* is not a good indicator of any particular capacity to predict market trends while it remains, obviously, true that the *purchase* of this type of options could reveal in any case something about Keynes’s predictions, i.e. his expectations of a high volatility in prices.

These ratios come to about 65% for copper, 53% for tin, 55% for lead and 70% for spelter, for an average value for the whole metal options trading of about 61%, which was

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33 Since the BODs and SODs played a relatively small part in Keynes’s option strategies (copper BODs were 5 out of 53 operations and only 4 of them were exercised i.e. 7%; and tin BODs and SODs were 22 out of 123 operations and only 8 were exercised, i.e. 6.5%) and since we do not take futures into consideration, we did not include these contracts in our calculations.

34 There were two call options in lead bought on the 13th and 20th November 1924 (SE/11/2/29 and 32) and one in spelter bought on the 26th of April 1923 (SE/2/11/21) which Keynes exercised even though they were ‘out of the money’. We have excluded them from the numerator of the exercise ratio since the exercise in these particular cases does not indicate Keynes’s capacity to anticipate price. It remains to be explained why Keynes exercised these options if they were ‘out of the money’. It has been noted that “Out of the money call options, with the strike price more than the current market price, cost less than the underlying asset, meaning that they provide leverage exposure to the upside (relatively to the equivalent expenditure on the asset), and the maximum loss is the upfront payment” (Mixon 2011: 20). This explanation tallies well with the lead and spelter call options since there was a sufficient interval between the exercise of the option and the liquidation of the underlying future contract, which could be done any day within the month of the expiration of the option (e.g. SE/11/2/74-75 and SE/11/2/103-104) - unlike copper and tin call options, for which the liquidation of the
thus quite high. Keynes showed greater capacity in predicting market prices in the spelter
and copper markets than in the lead and tin markets. It is worth noting that in the case of lead
he obtained the highest net absolute profits although he showed a lower predictive capacity
than in other markets: this means that in the case of lead he made huge gains because he was
able to anticipate prices in a couple of very favorable circumstances, not because of an ability
to forecast prices over the whole period. The difference between the strike price and the
market price was what really mattered, since commissions and transaction costs were very
high.

A better picture of Keynes’s performance in metal options is provided by computing the
return on investment\(^\text{35}\) in option dealings in each market. We have computed it, as a rough
indicator, simply as the ratio of the total net profits/losses to the total capital invested\(^\text{36}\) over
the whole investment period in each market (see Table 2 above).

Comparison of these ratios gives us a better understanding of Keynes’s performance in
his option dealings in the four metal markets. In fact, if we view profits and losses in absolute
terms, Keynes achieved his best performance in the lead market, as we have seen. But with
regard to the ROI we observe that the market he had most success in was spelter. In fact
Keynes invested in spelter only 5% of the total capital invested in metal options, amounting
to £52607, but he gained net profits of almost £2900, corresponding to about 35% of his
total net profits.

If we compare the ROI in the two markets in which Keynes registered higher net profits,
spelter and lead (see Table 2 above), the big difference is due not only to the better capacity
to predict price movements in the spelter market (testified by a higher exercise ratio), but
also to the fact that he invested in spelter less than 20% of the sums he invested in lead,
making profits amounting to 60% of the profits obtained in lead. As far as tin and copper are
concerned, the absolute net profits/losses and the ROI value confirm that the investment in
tin options was decidedly unsuccessful, and only just successful in copper options.

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\(^{35}\) What the ‘right’ way should be to compute this indicator and specifically what should be considered as ‘the
capital invested’ is a matter of dispute in the literature. In our computation we have followed the view that, in
the case of options, the capital invested is represented by the cost of the option. In fact, in this analysis of
Keynes’s dealings in options, the capital he had effectively advanced when he bought the option (and which is
registered by him in his ledgers) is given by the total cost of the option i.e. the premium times the quantity
involved in the underlying future contract. Unfortunately, in the cases of BODs and SODs, Keynes did not
clearly register in the ledgers the premium (the margin paid over or below the future price), and this makes it
difficult to decide how to compute the ‘capital invested’. For these reasons we have excluded, also from
computation of the ROI, these peculiar contracts.

\(^{36}\) In our computation we have excluded the hedging operations, i.e. the double options bought the same day
(or contiguous days) and with the same maturities (or contiguous maturities) of a long position on futures
contract. Since our concern in this paper is analysis of Keynes’s behaviour in ‘pure speculation’ we excluded
those dealings that were undertaken by him only as a means to hedge his positions in futures.
Finally, if we take as a benchmark the annual average yield of Consols, which remained around 4.5% in the 1920s and dropped to an average of 3.5% in the 1930s (see Homer and Sylla 1991: 447, Table 59), we can conclude that, comparing it with the annual ROI in each metal, on the whole Keynes was not successful in his speculative dealings in options (see Table 3 below), bearing out a similar conclusion reached by Accominotti and Chambers (2014) in their analysis of Keynes’s speculation in currencies.37

37 “Over the whole period he traded during the 1920s and 1930s, we estimate Keynes achieved a considerably lower average return (5.37%) and Sharpe ratio (0.16) than both carry and momentum. This underperformance was mostly concentrated in the 1920s. In the 1930s, he managed to beat the carry trade but still unperformed the momentum strategy and was unable to match the returns on UK stocks and bonds” (Accominotti and Chambers 2014: 4).
Table 3. Annual ROI on Metal Options

<table>
<thead>
<tr>
<th>Year</th>
<th>TIN</th>
<th>SPELT ER</th>
<th>COPPER</th>
<th>LEAD</th>
<th>YIELD S* on 2 ½ % Consols</th>
</tr>
</thead>
<tbody>
<tr>
<td>1922</td>
<td>290.5</td>
<td>308.75</td>
<td>19.49</td>
<td>98.14</td>
<td>4.43</td>
</tr>
<tr>
<td>1923</td>
<td>-82.15</td>
<td>-117.57</td>
<td>-32.21</td>
<td>65.61</td>
<td>4.31</td>
</tr>
<tr>
<td>1924</td>
<td>-43.60</td>
<td>160.26</td>
<td>3.72</td>
<td>-104.97</td>
<td>4.39</td>
</tr>
<tr>
<td>1925</td>
<td>-57.78</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4.43</td>
</tr>
<tr>
<td>1926</td>
<td>-21.34</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4.55</td>
</tr>
<tr>
<td>1927</td>
<td>-66.79</td>
<td>-</td>
<td>-</td>
<td>100.0</td>
<td>4.56</td>
</tr>
<tr>
<td>1928</td>
<td>-131.17</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4.47</td>
</tr>
<tr>
<td>1929</td>
<td>-100.07</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4.60</td>
</tr>
<tr>
<td>1930</td>
<td>-104.07</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4.46</td>
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<tr>
<td>1931</td>
<td>28.26</td>
<td>-</td>
<td>-</td>
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<td>4.53</td>
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<tr>
<td>1932</td>
<td>-6.82</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3.76</td>
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<tr>
<td>1933</td>
<td>-0.95</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3.38</td>
</tr>
</tbody>
</table>


5. Conclusions

In this paper we have presented some of the findings of our investigation into Keynes’s speculative activity in the option market. In the main he was active in metals, notably copper, tin, lead and spelter, with some trading in rubber and linseed oil. Assembling the
data and drawing upon the information to be found in his papers, which to the best of our knowledge had not hitherto been analyzed, we were able to present a detailed picture of his dealings in options in the interwar period.

In particular we gathered information on future, spot and strike prices, commission charges, *premium*, gross and net profits for Keynes’s dealings, and on this evidence we were able to assess his performance and investment strategies. We addressed several questions a) how did he form his expectations? b) What strategy did he adopt? c) Was Keynes on average good at predicting prices trends? d) Did he on average reap profits or suffer losses in his dealings in options?

While we cannot claim to have come up with exhaustive answers, we can offer the readers some results.

We introduce a distinction which is not generally adopted in the literature. We calculated the gross and net revenue for each option bought and took the gross revenue as a proxy for Keynes’s ability to forecast prices and the net revenue as a proxy for performance.38 In this respect we found that both his ability to forecast prices and his performance were variable in relation to the different markets and time spans, but as a rough figure we came up with a total ROI 39 of minus 13% and a net loss of £6805 (see Table 2) during the 12 years that saw him active in metal options. This negative experience in commodity option dealings, however, does not seem to have shaken his general faith in the superiority of the investment in commodities over other assets, as testified by the comments he made many years later that we have quoted in the epigraph.

But from the analysis of his investment activity in options what general conclusions can we draw about Keynes as an investor? At least throughout the 1920s Keynes appeared as an informed trader, who took great care in collecting information about the “fundamentals” of the commodities he traded. This was certainly facilitated by his work for the Cambridge and London Economic Service, for which he wrote a yearly *Special Memorandum* (1923-1930), where data on consumption, production and stocks were systematically analysed. At the same time, the frequent strategy of leveraging his long positions with a combination of futures, calls and BODs shows Keynes to have been a risk-lover investor who seldom hedged his exposure in futures, and most of the time was simply long in call options.

We have not viewed Keynes’s dealings in options in relation to his portfolio, where futures in commodities had the largest share, while currencies were traded mainly in the early 1920s and shares mainly in the 1930s, but as the chief instrument of his speculative activity. In this respect no attempt has been made to evaluate the overall performance of Keynes as an investor - for which a great deal of further data collection and analysis is needed - but to reconstruct his behaviour and assess the outcome in dealing with a highly risky and leveraged asset.

Keynes basically gave up his dealings in options in the early 1930s, and this can be interpreted also as a break in his style of speculation, as indeed is documented in the

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38 “In commodity futures markets a measure of the forecasting ability of speculators is not hard to find, for it is immediately reflected in their profits and losses” (Houthakker 1957: 43).
39 It has been computed as the ratio of the total net profits to the total investment in options in the four metal markets.
literature. Chamber and Dimson (2011), analysing his activity as Bursar for King’s, evidenced a radical change in Keynes’s approach to investment around the same time.40

It is tempting to relate this change in investment behaviour to a change in Keynes's views on speculation (Marcuzzo 2012), paralleling the development of his ideas from the Treatise to the General Theory. Unfortunately the influence of his practice as a speculator on his theory of speculation is not easy to pin down specifically, although it can certainly be argued in general terms.

We are aware that this paper contributes only a small part to the full picture of Keynes’s overall financial investment, but nevertheless we believe that it is a valuable part, since it draws on new archival findings and concerns the most speculative asset available to Keynes at the time. It also shows how in the 1920s Keynes 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 other participants’ opinions. Although his strategy changed in the 1930s, and shares became the main component of his portfolio, he still believed in commodities - as testified in the quotation opening this paper - but he gave up the riskier component of this type of investment represented by options.

Perhaps his early belief that superior knowledge conferred the speculator with an advantage over the market gave way to his mature conviction of the impossibility of gauging the ‘prospective yield’ on the basis of the fundamentals, and that performance meant in fact successful betting on a ‘favourable change in the conventional basis of valuation’, as he wrote in the General Theory (CWK VII: 159). Since the conventional basis is the average market opinion, as described in the ‘beauty contest’ example, the basis of success becomes more uncertain and fragile and boldness necessarily gives way to prudence.

40 Also in Foresti and Sanfilippo (2012), who analyzed Keynes’s investment in the wheat futures markets, a change is shown in Keynes’s speculative style occurring around the beginning of the 1930s, when he abandoned a short-term kind of investment behaviour (adopted especially in the North-American markets) aiming at anticipating the reversal in market trends in favour of a long-term investment behaviour characterized by the adoption of a roll-over strategy of long positions in futures, mainly on the Liverpool market.
Fig. 1a. COPPER: Keynes’s weekly position in options and prices, December 1921-January 1925
Fig. 2a. TIN: Keynes's weekly position in options and prices, January 1922-June 1933
Fig. 3a. LEAD: Keynes's weekly position in options and prices, July 1922-October 1927
References


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