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FINANCIAL DERIVATIVES AND VALUE THEORY : TOWARDS A THEORY OF CAPITALIST MONEY

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Michael Rafferty and Dick Bryan

Paper No. 2003/07
November 2003

ISSN xxxx-xxxx

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Michael Rafferty and Dick Bryan

Address for correspondence:

Michael Rafferty
School of Economics and Finance
University of Western Sydney
PO Box 1797
Penrith South DC, NSW
Australia 1797
Email: m.rafferty@uws.edu.au

Dick Bryan
School of Economics and Political Science
University of Sydney, Australia
Email: dickb@econ.usyd.edu.au

Acknowledgment

The authors wish to acknowledge the contributions of Neil Ackland, Geoff Kay, Simon Mohun and Gavan Kitching

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Abstract

The extraordinary growth of financial derivatives since the mid 1980s is an issue with which Marxian value theory needs to engage. This paper contends that the recent growth of derivatives results from changing needs of commensuration in the international money system. Although Marx's own analysis of money is inadequate to the task of explaining derivatives, his conception of commodity money provides a useful starting point. Derivatives can be explained as new forms of commodity money that help to provide flexibility in commensurating diverse forms, localities and temporalities of financial assets better suited to the changed conditions of accumulation.

Key words: Marx, value theory, financial derivatives, international money
JEL classification: B14, B24, F31, G15

1 Introduction

There have been major developments in international finance in the past 20 years associated especially with the development of financial derivatives.[1] Conservative and liberal commentators on global finance, and the process of 'globalisation' generally, not infrequently acknowledge the perspicacity of Marx and Engels as having depicted these tendencies 150 years ago in *The Communist Manifesto*. Coincidentally, Marxist value theory has been in relative decline as a means to understand economic change in general and finance in particular. One effect is that there is little work, within even a 'broadly Marxist' framework that has addressed developments in international finance. The analysis that has emerged has

generally not included a direct engagement with the theory of value - it addresses 'hot money', 'speculative bubbles' and over-expansion of credit rather than questions of money as a representation of value. Even within a formal theory of value, there is recourse to notions of 'fictitious capital', permitting the growth of derivatives to be marginalised as an unproductive circulation of capital and the profitability of derivatives trading to be dismissed as a drain on surplus value. Moral disdain is never far away.

For Marxist theory, rethinking the role of money within capital accumulation is a bit of a no-go area. Marx's analysis was largely conceived within, and is a reflection of, the Gold Standard and is in conspicuous ways completely outdated in the light of the disappearance of any semblance of a connection between gold and the international financial system.[2] But attachment to the Gold Standard is not the only problem: all economic theories are having enormous problems explaining international capital flows generally and foreign exchange markets in particular. Indeed, they cannot even explain why their models do not work (Engel 1999, Brock 1999). Perhaps the silence of Marxists is a sign of wisdom.

In seeking to meet the challenge of rethinking money within capital accumulation, this paper must be immediately seen as broad in its scope and somewhat speculative in its argument. Neither is a wise attribute to employ. But the paper is conceived around a simple proposition, albeit with a deeper analytical concern attached. Empirically, financial derivatives represent (at least in value of turnover) the largest and fastest-growing industry in the world, and one that is fundamentally transforming the way in which the production of commodities is being funded and commodities themselves circulated as values.

This paper argues that Marx's concept of commodity money offers an important analytical

approach to re-connecting Marxism to the task of analysing developments in global finance. The paper begins by outlining the analytical challenge posed by financial derivatives before discussing this in two separate, but related sections. The first addresses the *recent* growth of derivatives while the second considers the *underlying* dimensions of derivatives growth. The paper then asks what role derivatives might play within Marx's value theory and then outlines how the concept commodity money represents a way of conceptualising capitalist money, and how this may be applied to understand the development of derivatives.

2 The analytical challenge of derivatives

Analyses within a Marxian framework seem content to discuss the role of money, of credit and perhaps bonds; without due recognition to the growing scale and significance of derivatives as a form of asset holding, means of payment and, most importantly driver of exchange value.

Derivatives are surprisingly simple contracts. They provide an array of hedging/speculation facilities that allows one form of financial asset to be converted into another, with a preferred risk profile[3]. We know that futures and options markets go back many centuries, especially in markets for agricultural products. But the growth of financial derivatives as we now see them was not imagined even in the 1970s, let alone the 1870s. Growth *per se* in a diverse industry is difficult to measure, but some indication is seen in currency and interest rate swaps growing from $US400 million in 1985 to $US 58.5 trillion in 2000 (Swaps Monitor 2002) [4]. Using a slightly different estimation method, the Bank for International Settlements, placed the global amount of OTC contracts outstanding at December 2002 at 95 trillion (BIS 2003)[5]. Significantly, virtually all the growth in the last decade has been in transactions

between different forms of money (such as interest rate and currency swaps), not between money and commodities (such as commodity futures).

Their prolific growth in global financial markets is to be understood in part as a result of mounting and sustained financial volatility (and hence more, and more diverse risk) - the opposite financial condition from the Gold Standard. The critical point of financial derivatives is: a) that they are large, dominating international finance, and even dictating prices in spot markets,[6] and b) that they are finance packaged as commodities – contracts to be bought and sold and, indeed often re-traded.

This signals that the concept of money itself must be up for scrutiny. The Bank for International Settlements was saying as early as 1984 that "under pressure form financial innovation [especially the growing role of derivatives] the concept of money is in danger of losing its operational value or meaningfulness" (BIS 1984:14)[7] Virtually no monetary theorists took heed[8], and the mainstream finance literature remains devoid of sustained engagement with this question. Marxism is in that same position.

In addressing this gap, it is important to set derivatives in some historical context. While derivatives became conspicuous from the 1980s, it is also important not to treat derivatives simply as a phenomenon of the last 20 years, nor to evaluate their role in accumulation simply in terms of the operation of recent global financial markets. Finance has been evolving, but has been central to the process of accumulation from the birth of capitalism. Marx himself identified the growth of bonds and securities, including on an international scale, and the rise of the stock market as important moments in the development of capitalist finance (Marx 1894: esp. Chs.31-33), and we know that the history of innovation in money

and money substitutes goes back much further (see for instance Kohn 1999). As one finance textbook has put it, derivatives "are the most recent manifestation of the 900 year trend to turn money into an intellectualised, disembodied force" (Henderson and Price: 188). But derivatives of 900 years ago were part of a different system of accumulation. This paper seeks to examine the way in which derivatives now operate as a form of capitalist money, and what distinctly capitalist role they play.

Accordingly, the remainder of the paper is throughout structured at two levels. The first addresses the globalization of finance and the rapid growth of derivatives in the past 20 years. It asks what that process signals as warranting immediate explanation within a Marxian theory of value. The second addresses the underlying issues that derivatives pose for a theory of money within a developed capitalist economy. These two foci will be labelled as the 'recent' and 'underlying' dimensions of derivatives.

3 Recent derivative growth: Speculation or something more?

We have already noted briefly the scale of derivative growth in the past 20 years. It is, by now, a widely noted growth. The proximate causes of the growth of recent derivatives include breakdown in the Bretton Woods exchange rate regime, increased price volatility, the development of international capital markets, and the internationalisation of the circuit of individual capitals (Rawls and Smithson 1993, Partnoy 1997; Bernstein 1996), as well as developments in communication and information technology, and the regulatory environment.

The growth of derivatives is often understood as a response to greater (and privatised) risk, especially price risk. However, despite their growth, price volatility in commodity, asset and financial markets remains high. Contrary to the predictions of orthodox economics, greater trading and the introduction of derivatives products seems to be reproducing volatility (Carlson and Osler 2000).

This has led to an emerging body of literature that has questioned whether or not speculative activity may account for this volatility. Notions of 'hot money' and 'casino capitalism' and 'speculative bubbles' have been in widespread usage to describe these processes. Speculation and volatility have been extensively theorised within a post-Keynesian discourse (for example, Minsky 1992; Eatwell and Taylor 2002) Without deep reflection, this literature has been taken on by some as also Marxist-compatible.

Eatwell and Taylor (2002:12) have picked up on Keynes' now well-known beauty contest depiction of financial markets as herd-driven: "what average opinion expects average opinion to be". Accordingly, these markets eradicate any material foundations (the so-called 'fundamentals') from financial price determination. Mere opinion (speculative positioning) becomes everything. De-regulated capitalism is thereby seen to reveal a deep, anti-social irrationality and volatility and financial derivatives are a primary means by which speculative processes are expressed.

On a day-to-day basis, this may well be well characterize the determination of individual asset prices. Yet this post-Keynesian literature feeds directly into a policy agenda of containing volatility and speculative flows by turnover taxes or the assertion of (preferably

global) regulatory controls. It is debatable whether this is where the Marxist implications lie. But that is a separate subject.

However valuable this analytical agenda focusing on speculation and volatility may be, it is predicated on an assertion not just that derivative markets are sites of speculation, but that they are dominated by speculation; even that their raison d'etre is speculation. When it is effectively impossible empirically classify individual market transactions as either 'speculative' or a 'legitimate hedge' (Parsons 1988), it is difficult to say just what proportion of derivative trade is speculative (and, by the post-Keynesian logic, warranting strategies for eradication). Indeed, as Grahl (2003) has argued in the context of refuting proposals for a Tobin tax, attempts to restrict 'speculation' that also restrict 'legitimate hedging' in the process will have profound but unintended consequences for 'real' accumulation.

So if derivative markets are not reducible to 'speculation' and 'hot money', even though they may embrace both, there remains the vital question of exactly what wider role derivatives play within accumulation. That is the subject addressed in this paper.

But a note of clarification in this agenda: by engaging derivatives outside the topical issues of volatility and speculation, it is not intended to suggest, as does the neo-classical finance literature, that derivative markets promote global efficiency (and that, following Milton Friedman's rational speculation hypothesis[9], speculation is all just part of the market efficiency package). The proposition is simply that the role of derivative contracts within Marxian value theory needs to be explained and, indeed, can help articulate the role of finance within the formation of value. Conversely, simply classifying derivatives as speculation (and even attaching to that the more dignified function of hedging) or fictitious

capital shuts down an inquiry into the way in which money and commodity production may be transforming within capitalism. By historical analogy, the formation of the joint stock company as a fictional legal person during the mid 19th century was often seen at that time mainly as a device to permit speculation on an expanded scale. We now know that the joint stock company has been a critical way that capital as a social relation and as value in movement has been able to expand under changed, and changing, conditions of accumulation (see for instance Kay 1991, Rafferty 1998).

So what role are derivatives playing? Outside a focus on speculation, the global financial system can be seen as structured by the on-going reliance on national currencies and different national interest rate regimes, and with individual capitals facing choices (and hence exposure to risk) in the denomination of currency and interest rate regime (fixed/floating). With a strong national component in any currency's value and interest rate, these globally integrated markets do not systematically create a seamless global financial unit: they do not create purchasing power parity in exchange rates or (national risk-adjusted) real interest rate parity. Yet for capital to circulate globally between different (and continually changing) interest rate regimes and across different (and continually changing) exchange rates, there must be an active (continually adjusting) process of commensuration.

The 'recent' problem requiring commensuration can be specified as follows: in Marxian theory, a process of exchange of equivalent values is always expressed at a given time and in a given monetary unit. So-called 'globalisation' highlights the limits of this framework. Exchange occurs across variable exchange rates. Each 'M' in an M-C-M exchange may be a different currency, where the rate of exchange is not stable. So there is a problem of possible discontinuity in the measurement of Ms even when the value of Ms is equivalent. There is a

need to commensurate the two ‘Ms’ in exchange across territorial space. In a similar vein, each M may have a different discount rate (which will specify a currency-specific value of M at any point in time). This is a further problem of commensurating the two Ms when we think of exchange over time. With volatile exchange rates and a range of interest rate regimes for each currency, the equivalence of exchange cannot be verified: there is a problem of discontinuity in the measured value of capital in different forms and at different locations. The process of commensuration, in which spatial and temporal continuity in the measured value of capital is constructed, is the function derivative markets perform by trading a diverse range of contracts designed to specify or delimit the rate of conversion of one ‘bit’ of capital value (whether it be money or commodity and whatever its currency denomination and time specification) into another.

This simple explanation is directly consistent with the nature of derivative growth. Just as global financial markets contain conspicuous on-going discontinuities, especially between currencies and interest rate regimes, so currency and interest rate swaps accordingly dominate derivatives markets turnover.

To be sure, there follow opportunities to speculate on currencies, interest rates and the full range of other products on offer, but the underlying logic, which makes derivatives an integral part of contemporary accumulation, is a process of commensuration. So long as there is no single global currency and global central bank (an abstract notion that is associated with particular idealised notions of competition and money anyway), derivative markets are the primary means to provide continuity to global financial markets.[10]

4 The underlying role of derivatives: mediation of financial discontinuities

But while the recent prominence of derivatives may be explained in terms of global financial integration and the need of accumulation to transact across different currencies and different national interest rate regimes, the existence and logic of derivatives is not so restricted. The logical condition for the operation of large-scale derivatives markets is simply the existence of different forms of capital at different stages of the circuit of accumulation whose commensurability is not guaranteed.[11] Derivatives help to mediate these discontinuities in the value of capital during the accumulation process.

The raison d'être for modern financial derivatives is to provide commensurability across different kinds of financial assets and at different dates and in different monetary units. While theories of arbitrage would configure this as an equilibrating process, our analysis suggests, on the contrary, that discontinuities are not eradicated but continuously reproduced. In the context of recent derivative growth, global financial integration does not gravitate national currencies to purchasing power parity, nor interest rates to national-risk-adjusted parity. [12] It is not possible to reduce one locality to another, one time another or one form of capital to another; but they can be, and are, mediated on a daily basis.

Derivatives have transformed the way that the commensuration process occurs, and they do so in a way highly suited to contemporary international finance. Each derivative product is a package of conversion of one form of capital to another – whether this be a simple commodity futures contract or a complex conversion of a particular currency index to a particular stock market index. When all these products are taken together, they form a complex web of conversions, in which any 'bit' of capital, anywhere and with any time profile, can be measured against any other 'bit' of capital.

What role can derivatives play within Marxian value theory?

The concept of commensuration describes the essential functional depiction of derivatives within accumulation. It is also way Marx describes the function of money in exchange: money is the means by which "[different] commodities become magnitudes of the same kind, of the same unit, i.e. commensurable" (Marx 1939: 143). But how different monies are commensurated within a theory of value, and what it means to commensurate packages of financial assets whose underlying value is not itself being exchanged were questions not posed by Marx, nor since Marx. Hence we are arguing that derivatives confront us with a need to re-think the nature of capital and of money within Marxist value theory. We will pose each briefly in turn.

First, derivatives give concreteness to the concept of 'capital'. In posing accumulation as a circuit of capital, Marxists define 'capital' at a level of abstraction which presumes that value is preserved as capital changes its form between money (M) commodities (C) and production (P). Yet concretely, we know that as capital is exchanged between its multiple commodity forms, and money in its multiple forms (different currencies, interest rates, etc.): it cannot be presumed to have equivalent value at each point in the circuit. So this concept of 'capital' as it is currently used in a circuit of capital is only an abstraction, and abstracted so as to guarantee the preservation of value in exchange (Bryan 2003).

But financial derivatives, in commensurating different forms of money and commodity capital at different times and in different places, actually serve to create some empirical basis to the concept of capital. Derivatives require of Marxian value theory recognition that value in different times and places and in different forms of capital (different forms of money;

different commodities) cannot assume a singular connection to socially necessary labour time. Value, as a coherent unit of measure, has to be qualified by inter-temporal and spatial movements in prices and in different socially necessary labour times.

Second, and important to the theory of money outlined below, derivatives give foundation to the relationship between money and commodities. Derivatives bring to the fore the 'money-ness' of all commodities not only by verifying a range of money values of commodities in various currencies at various times, but by permitting claims on various commodities to be used as way of holding and exchanging financial assets.[13]

Take the case of a wheat futures contract. As a financial asset, wheat in the field itself is made liquid and brought into the terrain of money, playing the corresponding monetary role to gold in Marx's theory. By implication, all futures and options on physical commodities take those commodities into the realm of money – they construct them simultaneously as money and commodities. The critical point is that wheat-as-money is not simply serving the current and future market involving wheat growers and millers. As financial asset, wheat futures are commensurating wheat with all other forms of financial asset (money capital)[14]. The same can be said for different forms of money, where currency and interest rate swaps ensure that one form of money can be continually commensurated against all other forms of money.

Put another way, whether a derivatives trade should be depicted as C-M or M-C depends entirely on the portfolios of the trader – whether the sale (or purchase) increases or decreases the seller's (purchaser's) liquidity. This seems to confront the depiction of a universally singular notion of 'money' that is exchanged with non-money commodities. The overall

effect, however, is to break down the distinction between conventionally understood commodities and money.

In short, derivatives permit all forms of capital ('money' and 'commodity'), at all places and over time, to be commensurated, breaking down the differences between different forms of money (different currencies; different interest rate profiles) and between commodities and money. While Marx's value theory is usually associated with emphasising the commodity characteristics of money (gold); derivatives also highlight the monetary characteristics of all commodities. Hence the proposition that drives this analysis: that taking seriously the role of derivatives in accumulation leads directly to a consideration of the ramifications for an understanding of the theory of money.

4 Marx's theory of commodity money and financial derivatives

Contemporary analyses of Marx on money see the theory of commodity money as an anachronism. 'Better just focus on money as capital, or money as social relation', seems to be a rather standard response. Our argument here is that Marxian analysis is not impeded by a reliance on a commodity theory of money. On the contrary, it was Marx's particular designated commodity money, restricting the money commodity to gold, that obstructs a more creative understanding of the nature of capitalist money. Our argument is that derivatives, as traded commodities, hold the foundations of a more general theory of capitalist money as commodity money.[15]

Money enters Marx's theory of value as a single commodity: gold. The value of money is therefore always bound up in a tension between the socially necessary labour time involved

in the production of gold and the general level of prices associated with the ratio of commodity gold to all other commodities.[16] That tension is difficult for value theory to absorb, and Marx spent considerable time in the *Grundrisse* and in Volume III of *Capital* trying to resolve an effective technical formulation. No one claims that he succeeded, and the global scale proved the most difficult part.

With gold as international currency (the spatially universal equivalent), but produced under specific, nationally-delineated costs of production, there was always a tension between the value determination on a national and global scale, and how cross-national transfers of gold 'equilibrate' the value system. There was no basis on which the value of gold as produced commodity and the value represented by gold as the equivalent form of value would be systematically commensurable. Indeed, the problem is not specific to gold; it applies to all commodities and hence doubly to gold.

But Marx was not a bullionist: its pre-eminent status is based, he contended, in superstition, and he considered that economists' obsession with the gold the as the natural form of money as little more than 'educated superstition'. His concern to explain money went deeper than the technicalities of gold. So the investigation of the rudiments of a theory of money consistent with financial derivatives must look beyond the form of gold. It is to Marx's earlier writings, particularly on alienation, that we look for conceptual propositions about the nature of money and finance.[17] For example, reviewing James Mill's *Elements of Political Economy*, Marx (1844) emphasises the importance of contingency in relation to 'laws' about money and the essential role of money as a mediating process. Derivatives provide the key to theorising both contingency and mediation. Marx goes on to explain the basic characteristics of capitalist money:

> The personal mode of existence of money as money -- and not only as the inner, implicit, hidden social relationship or class relationship between commodities -- this mode of existence corresponds the more to the essence of money, the more abstract it is, the less it has a natural relationship to the other commodities, the more it appears as the product and yet as the non-product of man, the less primitive its sphere of existence, the more it is created by man or, in economic terms, the greater the inverse relationship of its value as money to the exchange value or money value of the material in which it exists.
>
> Hence paper money and the whole number of paper representatives of money (such as bills of exchange, mandates, promissory notes, etc.) are the more perfect mode of existence of money as money and a necessary factor in the progressive development of the money system. In the credit system, of which banking is the perfect expression, it appears as if the power of the alien, material force were broken, the relationship of self-estrangement abolished and man had once more human relations to man.

The important point Marx is contending above is that the more money is 'lifted above' direct commodity relations by 'losing' the characteristics of other commodities, the more "perfect its mode of existence" because the social relations of capital, expressed in commodity production, are not being contaminated by the particularities of the chosen money commodity.[18] Gold is, in this regard, an extremely primitive form of capitalist money: indeed, we know it historically as pre-capitalist money. Financial derivatives, on the other hand, as advances beyond promissory notes and bills of exchange – contracts that are man-made and

having no “natural relationship” to the products from which they derive (hence the term ‘derivative’), appear as a highly advanced form of money.

Nonetheless, the requirement for a global monetary system is precisely as Marx conceived of it in the abstract - a role for commodities that are both part of other commodities, but also discrete commodities. But gold is a single (or at best dual) dimensional commodity.[19] There are too many types of discontinuities in the global financial system to be reconciled by a single commodity in the role of money. The multiple forms of risk-exposure, reflecting the range of possible inter-temporal, inter-spatial, inter-financial-instrument price relativities requires intermediation in a form that is itself flexible and able to reflect the range of possibilities in these relativities. Gold does not meet this requirement, especially in an era when money capital increasingly takes the form of credit money. Derivatives, on the other hand are commodities traded for precisely this purpose.

5 Derivatives: commodities commensurating monetary discontinuities

We have seen that, in terms of Marx’s benchmark of the ‘progressive development of the money system’, derivatives meet the requirement of a more ‘perfect mode of existence’ by being abstracted from ‘a natural relationship’ with other commodities. But are derivatives themselves commodities, and how can Marx’s conception of money reconcile the need for commodity money, yet for commodity money to appear as ‘not the product of man’?

Marx’s conception of commodity money was both advanced and constrained by the Gold Standard within which it was conceived. It was advanced by recognition that money must have a commodity basis if it is to be an integral component of capital accumulation and not

just a numeraire. A clear problem of current conventional economic analyses of floating exchange rates and financial derivatives is that they can only set the problem of explaining relative prices; not the money system itself. Commodity money is a credible way round the problem of simply explaining relative prices.

But Marx's conception was also constrained by the then widely held belief that one commodity, gold, could act as a universal equivalent form of value and furthermore, that the robustness of its status resided in its defined and finite quantity. In Marx's time, the expectation was that one particular commodity (gold) could traverse and reconcile all the discontinuities within the money system.

Derivatives, however, confront that image. Any single unit of measure such as gold can represent only a balance of multiple processes of commensuration, and thereby actually reconcile perhaps none at all. Derivatives, on the other hand, are literally thousands of types of commodities whose specific characteristics are designed to secure commensurability between time, space and different forms of capital. If money is defined by its role in the process of commensuration (or as Marx put it in the 'mediating' process), there is no logical preclusion that a range of 'commodities' could not fulfil the function of the equivalent form of value when there are clearly articulated mechanisms of commensuration between the various monetary commodities.

So in what sense are derivatives 'commodities'? We know Marx depicted transport as "a production process *within* the circulation process" (1885:229). Can the same be said of derivatives – that they involve production within the circulation of money – 'transporting', as it were, one form of capital into another?

Financial derivatives are produced (as contracts) and offered on the market as products of the labour of financial institutions and operatives that stitch up the deals. That they may be re-traded at variable prices and for speculative purposes is a secondary matter and true of most physical commodities anyway. Indeed, the fact that over-the-counter derivatives (an agreement between two pre-determined parties usually made over the telephone and not mediated through an official exchange) now far exceed the number and value of (arms-length) exchange-traded derivative contracts is some testimony to this primary function.[20]

In clarifying this perspective, two propositions warrant explanation. First, the proposition is not that the full value of a derivative contract is the product of the labour of financial intermediation, any more than transport produces the full value of a commodity. Derivatives are commodities whose primary function is the commensuration of other commodities[21]. The labour value is undoubtedly miniscule compared with the monetary quantum of the derivative contract itself. Indeed, that balance is precisely what is required of commodity money. The more the face value of money represents the value of the money unit itself as a commodity (for example, the value of gold representing the labour time required to produce gold) the more its value in exchange is a representation of itself rather than of the commodities whose values it is supposed to mediate. In Marx's terms cited above "the mode of existence [of money] corresponds the more to the essence of money . . . the greater the inverse relationship of its value as money to the exchange value of the material in which it exists".

Herein lies the importance of derivatives as commodified finance, providing a system of universal equivalence, but not, as with gold, a commodity contingent upon the limited universality of one particular commodity. It was mentioned earlier in relation to futures

contracts that one effect of derivatives is to reconfigure commodities as (also) money. The argument here is simply the converse, that financial assets are also commodities. Combined, the effect is to merge the categories of commodity and money – in short, to make apparent that all commodities are forms of capital. Moreover, they are not just forms of individual capital, but of a systematic and integrated total social capital.[22]

Second, a derivative's exchange value is determined by actions of trading informed by calculations about actual and likely movements in price levels, interest rates and exchange rates.. But to dismiss this as 'unproductive' (simply as a market for speculation) fails to recognise the central role of derivatives markets in mediating the discontinuities in the international financial system, and giving global continuity to accumulation.[23] A futures contract, for example, 'converts' price (and value) in the future to price (and value) in the present, and so brings an inter-temporal notion of value.

Given the above and following Kay (1999: 272-76) we find it useful to draw a distinction between simple commodities (wheat, iron, cars, etc) and *meta-commodities*. The former, being prior and the products of labour, are 'productive' and correspond with our standard conception of a commodity. *Meta-commodities* come historically later, with the initial purpose of hedging the conditions of production and circulation of simple commodities.[24] As they have grown in importance, particularly since the 1970's, they came to provide commensuration across time and space between diverse simple commodities.

The essential characteristic of derivatives as commodities is that they are *products of circulation*, not significantly of labour, and accordingly their use value is defined in exchange and not in consumption. These meta-commodities are therefore always 'capital', for they

never ‘leave’ a circuit of capital so as to be consumed. In that sense, they are more intensively capitalist commodities than simple commodities, for the latter are merely *produced within* capitalist relations, while meta-commodities are *products of* capitalist relations. In a basic way these commodities meet Marx’s conception of “the more perfect mode of existence of money as money”: they are monetary commodities that “appear as the product and yet as the non-product of man”. Whether one is ‘productive’ and the other ‘unproductive’ or ‘speculative’ then seems to be an issue outside the objective of understanding the role of these commodities within capitalist accumulation and money.

6 Conclusion

Our analysis has sought to move from an identification of the underlying role of financial derivatives in the past 20 years to an identification of the underlying logic of derivatives within capitalist accumulation. In the process, the analysis suggested the need to re-configure Marxism’s approach to money, so that derivatives can be understood as integral to the money system (indeed as its refinement) rather than as a recent and perhaps temporary aberration.

For contemporary Marxists looking to engage with recent financial developments the tendency has been to draw on other theoretical traditions - especially Keynesianism and radical nationalism - and the focus has been on speculation and volatility that have come with derivatives market growth. Accordingly, agendas have focused on constraining volatility and speculation via turnover taxes (a ‘Tobin tax’), reimposing capital controls, and developing forms of global regulation (Eatwell and Taylor 2002).

The proposition of this paper is that Marxism needs to respond creatively to the challenges of explaining international financial developments, and it will not benefit significantly from

becoming either more orthodox or more radical. Derivatives need to be explained within value categories. In the process, we have contended, Marx's categories of 'capital' and commodity money start to take on empirically verifiable characteristics.

Derivatives show that there are commodified links that bind the financial system and that these links are imbued with a class characteristic. It is critical in this regard that the vast amount of derivatives contracts are now commensurating not just simple commodities but mostly forms of money capital. They are therefore now a pivotal aspect of competition between capitals. The centrality of money capital to the whole accumulation process sees derivatives disciplining the terms on which (and the locations in which) money capital is transformed into productive capital and the terms on which the output of production is transformed to back to money capital.

By taking derivatives from the sphere of contemporary speculation to the sphere of money, capital and commensuration, the class dimension of derivatives starts to open up. It does so not via judgments or irrationality in finance, but by recognition that the capital relation is integral to the role of derivatives as money. The competitive discipline in the sphere of money capital asserts direct pressures on capital in production, and thereby in the labour process, because all capital, everywhere, needs to be (and is being) commensurated. Derivatives thereby represent a form of money that is more adequate to the sense of global accumulation and global class relations that Marx sketched out in the *Manifesto*.

In attempting to understand derivatives within Marxist value theory, it may well be that this analysis has asserted some bold positions in important debates. But the analysis should be taken as a challenge: to explain derivatives in a way that doesn't marginalise them, for to

marginalise them will prove to be a profound historical error.

Notes

1 A recent IMF report identifies the recent growth of financial derivatives as "the single largest innovation in global financial markets in the past fifty years" (Vrolijk 1997). In 1999 Alan Greenspan, US Federal Reserve Chairman, has also commented that the development and growth of financial derivatives was "(b)y far the most significant event in finance during the past decade" (BIS 1999).

2 This impression comes through clearly from a reading of Lapavitsas' (2000) excellent re-statement of Marx's theory of money.

3 There are many definitions of derivatives, but most share the following: they are contracts in which price movements are linked to prices of another asset, commodity or index. Our preferred definition is that they are financial instruments that are linked to a specific financial instrument, indicator (index) or commodity, and through which specific financial obligations can be traded in their own right. There are two basic types of derivatives: those with option-like characteristics (where the option-holder has the right but not the obligation of undertaking the transaction), and those with forward-like characteristics (where parties agree in advance to undertake to exchange at a point or points in the future). For a discussion of the definition of derivatives see for instance Heath (1998)..

4 To put this into some perspective, the notional value of all global derivative contracts in March 1995 was roughly equivalent to the reported aggregate market value of all bonds, equity and bank assets in North America, Japan and the 15 EU countries in that year (IMF 1998).

5 Notional values (the value of the assets covered by the derivative contract) are not the only way of measuring derivatives. Some suggest that using the notional value overstates the importance of derivatives. They can also be measured by the value of the contract itself (a much smaller value than the notional value). BIS, for instance, estimated that the market value of derivative contracts at the end of 2002 was $US 3 trillion. Our point here, similar to Partnoy (1999), is that the measurement issue is one of degree, there is no doubt the derivatives market is large.

6 There is sustained evidence of derivative markets operating as the primary market for price discovery. As early as the mid 1970s it was found in certain commodities futures that price leadership had shifted from the spot market to the futures market. See for example, Garabade and Silber (1983) and Kwast (1986). On more recent evidence, see Vrolijk (1997) and Mayhew (2000). Our conception of derivatives suggests that this shift is not accidental; commensuration is at the heart of derivatives.

7 In 1993 Federal Reserve Chairman Alan Greenspan formally announced that monetary aggregates were being downgraded as a guide to monetary policy, because they no longer provided a "reliable

indicator of financial conditions in the economy" (cited Lim and Sriram 2003). For an account of the breakdown of money supply targeting, see also Bryan (1995).

8 A possible exception here is Goodhart (1995) and more recently Kiyotaki and Moore (2003). Goodhart suggested that developments in derivatives were part of a longer term process in the evolution of money. He gave the following example (1995,p3-4):

> In the first half of the nineteenth century money predominantly took the form of coin, or of bank notes convertible into coin. The control of the monetary/financial system was for many, including many of the best economists of the day, eg Ricardo, synonymous with managing the issue of such bank notes, (the Currency School). No sooner was this done, eg by centralising note issue in the Central Bank, as was done in Peel's 1844 Bank Act, than the nature of both banks, with the growth of branch-banking joint stock banks, and of money itself, transmuted. We are not currently facing quite as large a structural change to our concepts and to our institutional system, as occurred then. It is, however, quite possible that such changes may yet occur.

Kyotaki and Moore (2001) attempted to re-integrate value theory and monetary theory through a notion of (non-fiat) credit money. They suggest money as a medium of exchange is based on trust. Given trust, there is no reason that financial instruments such as shares or bonds, but especially forms of credit could not play a transactions role.

9 In advancing the case for flexible exchange rates, Friedman (1953) argued that only those speculators who buy when prices are cheap and sell when they are dear (akin to a circuit of merchant capital) would survive. This action would also then tend to stabilise prices. See also Bilson 1981.

10 We can note Marx's own association of 'globalization' with the changing requirements of financial markets, even though these now seem so modest. He recognised, for example, (1939: 160-61) that the need for hedging would increase with the global extension of accumulation:

> The autonomization of the world market (in which the activity of each individual is included) increases with the development of monetary relations (exchange value) and vice versa . . . . [T]ogether with the development of this alienation, and on the same basis, efforts are made to overcome it: institutions emerge in which each individual can acquire information about the activity of all others, and attempt to adjust his own accordingly, e.g. lists of current prices, rates of exchange, interconnections between those active in commerce through the mails, telegraphs etc. (the means of communication of course grow at the same time).

11 Indeed, it is now quite standard for the mainstream finance literature to note that derivatives do not require markets as they have existed since the 1980s, simply the existence of markets with different characteristics (Henderson and Price 1988).

12.This is to be explained in the context of recent derivative growth in terms of the role of nation states in the provision of globally-circulating currency: while each national currency circulates globally as part of 'global finance', its value and interest rate retains significant national characteristics and is responsive to 'its' central bank's determinations. Thus the many national faces of global finance predictably generate discontinuities in global finance that are not eradicated by equilibrating processes.

[13] Pryke and Allen (2000) describe the 'time-space monetisation' associated with derivatives: a useful notion that needs extending.

14 It is instructive here that virtually all commodity futures contracts do not result in any actual exchange of a commodity, but are settled by an exchange of money.

[15] We are drawn to Fleetwood's (2000) explanation of the necessity of commodity money to the integrity of Marx's theory of value, but not to his (tentative) conclusions that the abandonment of commodity money means the end of a universal equivalent form of value. Nor is there the question of why nation states have abandoned the universal equivalent and the value form. This appears a rather instrumentalist approach to value theory, and, more critically, fails to open up the terms on which Marxism can understand new forms of money.

[16] See Foley (1998) for an interesting analysis here that includes speculation on changes in the socially necessary costs of production of gold.

17 Marx's writing at this time, being strongly influenced by Feuerbach, is drawing on parallels between money and religion and both as alienated forms of social relations.

[18] Notice also that Marx could contemplate an association of 'perfect money' with something as basic as the credit system and paper representations of money. That now seems a rather low bar for depicting perfection.

[19] The duality relates to Marx's emphasis that gold never traded at its costs of production.

[20] Measured by notional amounts outstanding at year-end, in 2002 142 trillion in OTC derivatives compared with $10 trillion in exchange-traded derivatives (BIS 2003: A99 & 104).

21 We note here the fact that some derivatives, especially stock options, are being used as a means of payment for senior executive salaries.

[22] In Capital Volume II, in the context of explaining circuits of capital, Marx draws the distinction between commodity, productive and money capital, and between total social capital and individual capitals. In the first distinction, in a circuit M-C…P…C-M, the value equality of M, P and C is simply assumed as an abstract, competitive assumption. Derivatives markets provide the forum to concretely verify that competitive process and thereby establish commensuration in the market – that a farmer's investment fund (M) held in the form of any financial asset can be reconciled with the value of a crop in the field (P) as set in a futures contract, and with the price of wheat itself (C). That capital

maintains equivalence around the circuit can be verified (or denied) in derivatives markets

In the second distinction, between individual and total social capital, there exists the notion that all individual capitals sum to total social capital, but their integration to form a single entity of Capital is established only by abstraction. Here, too derivatives markets, in securing commensuration, concretely construct the concept of total social capital, for they break down the discrete nature of individual circuits by 'offering', as it were the capacity to convert capital to another part of another circuit

[23] Thinking of a derivative contract as something that is exchanged in the market (ie as a commodity), it is useful to recall the process by which Marx nominates a commodity's exchange value is determined. Even if one is disposed to dismiss derivatives as tools of speculation and 'unproductive', the following depiction of the process of determining exchange value still applies:

> For the purpose of merely making a comparison - an appraisal of products - of determining their value ideally, it suffices to make this transformation in the head (a transformation in which the product exists merely as the expression of quantitative relations of production). This abstraction will do for comparing commodities; but in actual exchange this abstraction in turn must be objectified, must be symbolised, realized in a symbol. This necessity enters into force for the following reasons: (1) As we have already said, both the commodities to be exchanged are transformed in the head into common relations of magnitude, into exchange value, and are thus reciprocally compared. But if they are then to be exchanged in reality, their natural properties enter into contradiction with their character as exchange values and as mere denominated numbers. They are not visible at will etc' (Marx, 1939: 144).

[24] The early history of derivatives is in fact bound up with the development of insurance. See for instance, Kohn (1999).

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