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## Systemic Crisis, Systemic Fear: An Exchange

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# Value and Crisis: Bichler and Nitzan versus Marx

Andrew Kliman

*Editors' Note: In this article, Andrew Kliman responds to Bichler and Nitzan's recent paper on 'Systemic Fear, Modern Finance and the Future of Capitalism' (2010). He then goes on to raise a series of issues concerning the critique of Marxian value theory which these authors put forward in their book Capital as Power (Nitzan and Bichler, 2009). It is followed by a rejoinder from Bichler and Nitzan.*

## Introduction

Shimshon Bichler and Jonathan Nitzan's (B&N) 'Systemic Fear, Modern Finance and the Future of Capitalism' (Bichler and Nitzan, 2010) argues that 'systemic fear' – fear of the death of the capitalism – has gripped capitalists during the last decade, as it did during the Great Depression. Their evidence for this claim consists of the alleged fact that these two periods of crisis were the *only* periods since World War I in which equity (stock) prices and current profits were strongly correlated.<sup>1</sup>

Employing the same methods and data as B&N, Part I of this response shows that equity prices and current profits were *also* strongly correlated during the so-called golden age of capitalism! This should cause us to doubt B&N's claim that systemic fear has prevailed in recent years. I then argue that flaws in their reasoning should also cause us to doubt their claim that capitalists are normally convinced that capitalism is eternal, as well as their claim that this conviction is crucial to its continued existence. But if the future of capitalism doesn't hinge on the conviction that the system is eternal, it also doesn't much matter whether capitalists have recently been gripped by systemic fear in B&N's sense.

Good old regular fear, "the dread and apprehension that regularly puncture [capitalists'] habitual greed" (Bichler and Nitzan, 2010, p. 18), is another matter. There can be little doubt that good old regular fear was intense at the start of the last decade, and even more intense at the end.

I believe that this good old regular fear was justified and that it remains so. The underlying long-run economic problems that led to the recent Great Recession, and to the weakness of the subsequent recovery, have *not* been resolved. Slow growth of employment relative to investment during the last six decades has led to a persistent fall in the rate of profit; the fall in the rate of profit has caused capital accumulation and economic growth to be sluggish for decades; and this sluggishness has led to mounting debt burdens (see Kliman, 2011). I doubt that the fall in the rate of profit can be reversed or that the debt problem can be solved without much more destruction of capital value – i.e. falling prices of real estate, securities, and means of production, as well as physical destruction – than has taken place to date. And if these problems remain unresolved, the economy will continue to be relatively stagnant and prone to crisis.

But it is difficult to discuss these ideas with B&N, or at all, because they and others like them contend that the theory on which the ideas are based, Marx's value theory, is internally inconsistent and circular. An internally inconsistent theory cannot possibly be correct.<sup>2</sup> All ideas resting upon such a foundation can thus be disqualified at the starting gate, without further ado. In order to clear the ground for a *genuine* discussion – one in which B&N's approach to questions of crisis and the future of capitalism is compared with and contrasted to something rather than nothing – Part II of this paper responds to the main criticisms of Marx's value theory contained in their recent book, *Capital as Power* (Nitzan and Bichler, 2009). In the course of that response, I will discuss *inter alia* how Marx's value theory helps to illuminate the long-term difficulties that led to the Great Recession and its “new normal” aftermath. Part III concludes.

## **I. 'Systemic Fear' and Capitalists' Convictions**

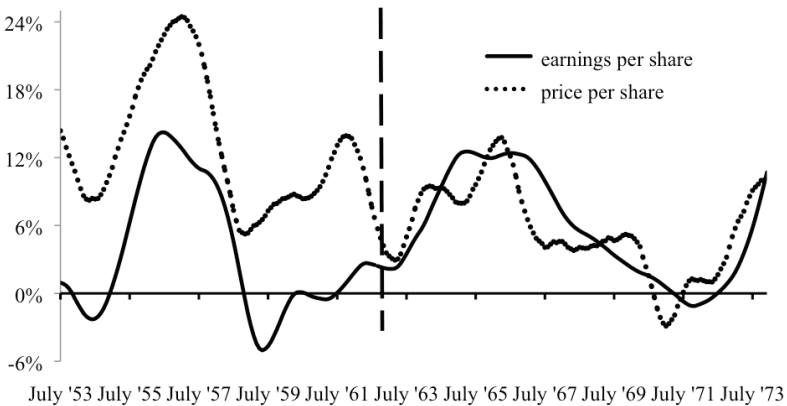
B&N (2010, p. 17) argue that “if we adhere to the scriptures of modern finance, we should expect to see *no* systematic association between equity prices and current profits.” And they claim that equity prices have indeed become decoupled from current profits since 1917, except during two brief and exceptional periods. “Figure 2 and Table 2 show *two* clear exceptions to the rule: the first occurred during the 1930s, the second during the 2000s. In both periods ... equity prices moved together—and tightly so—with current earnings” (Bichler and Nitzan 2010, p. 17) [emphasis altered].

However, their Figure 2 actually shows *four* clear exceptions to the alleged rule. Equity prices also moved together with current earnings – and tightly so – from the early 1950s to the early 1960s, and from the early 1960s to the early 1970s (see my Figure 1). During the first of these additional “exceptional” periods, period 4 of my Table 1, the correlation between equity prices and current earnings was stronger than during the Great Depression (period 2). During the other “exceptional” period that B&N fail to

bring to our attention, period 5, the correlation was lower, but still considerably stronger than during the 2000s (period 7).<sup>3</sup> The percentage of the variation in one variable that is “explained” by, or attributable to, the variation in the other is the square of the correlation coefficient,  $r^2$ . Thus, as Table 1 shows, only about two-fifths of the variation in share prices during period 7 is attributable to variations in current profits; the explained variation during period 4 is almost twice as great, while the explained variation during period 5 is more than 50% greater.<sup>4</sup>

Table 1 also shows that share prices have been strongly and positively correlated with current profits more than 40% of the time since 1917, and almost half the time since 1929. So the “exceptions” are not exceptional; the “rule” that share prices and current profits have become decoupled is no rule at all.

**Figure 1. S&P 500: Price and Earnings per Share, 1953–1962 & 1962–1973 (3-year moving averages of annual rates of change)**



**Table 1. S&P 500: Pearson Correlation Coefficient between the Annual Rates of Growth of Price and Earnings per Share**  
(Monthly data expressed as 3-year moving averages)

Period	Number of months			Correlation ( <i>r</i> )	Share-price variation explained ( <i>r</i> <sup>2</sup> )	
1	Oct. 1917	–	Dec. 1929	146	0.29	8%
2	Dec. 1929	–	Feb. 1939	110	0.89	79%
3	Feb. 1939	–	June 1953	172	–0.34	12%
4	June 1953	–	Aug. 1962	110	0.90	81%
5	Aug. 1962	–	Dec. 1973	136	0.80	65%
6	Dec. 1973	–	Sept. 2000	321	–0.20	4%
7	Sept. 2000	–	Mar. 2010	114	0.65	42%

Strongly positive-correlation periods: 2, 4, 5, and 7

42% of total months since Oct. 1917; 49% of total months since Dec. 1929

But B&N haven't merely gotten their facts wrong. *Because their facts are wrong, so is their paper's key claim that we can infer that investors are gripped by "systemic fear" when the relationship between current profits and equity prices is strong and positive.* They tell us that the two periods in which systemic fear prevailed were two periods of acute crisis, the Great Depression and the 2000s. If a strongly positive correlation between current profits and share prices were another exceptional feature of these periods of crisis, then the notion that we can infer the existence of systemic fear from the positive correlation might be plausible. But the 1930s and 2000s were *not* exceptional in that respect, as we have seen. And the other two strongly positive-correlation periods, which run from the early 1950s through the early 1970s, *cannot* plausibly be characterized as a time of systemic fear. On the contrary, that era was the so-called golden age of capitalism.<sup>5</sup> So a strongly positive correlation between current profits and equity prices does not allow us to infer the existence of systemic fear.

But the correlation data are B&N's *only* evidence that capitalists were gripped by systemic fear in the 1930s and 2000s. (The statements by the *Financial Times*, Alan Greenspan, Bernie Sucher, Gillian Tett, and Mervyn King quoted in their paper discuss a highly uncertain environment, economic crisis, and discredited economic theory and ideology, not fear of the death of capitalism.) So they have not given us a good reason to accept that claim.

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Nor do they give us a good reason to accept that the opposite of systemic fear – the conviction that capitalism is eternal – is the norm. Their ‘demonstration’ that capitalists are almost always guided by this conviction is fatally flawed. And since the same demonstration is the basis upon which B&N (2010, p. 3) claim that “[t]his ... conviction is necessary for the existence of modern capitalism, at least in its present form,” they also fail to give us a good reason to accept this latter claim.

The most glaring flaw in their ‘demonstration’ comes at the end, when they write, “*the fact that capitalists invest shows that they expect ... that the value of their assets will grow*, not contract – and that expectation means that, consciously or not, they also think that the ritual that values their assets will never end” (Bichler and Nitzan, 2010, pp. 3-4) [emphasis added]. The italicised clause is simply false. Just as some people buy lottery tickets even if they don’t *expect* to hit the jackpot, some people buy shares of stock even if they don’t *expect* their prices to rise. A large enough jackpot or a large enough potential capital gain more than makes up for a low probability of success. Hence, the fact that people invest does not mean that they normally *expect* capitalism to last forever.

Imagine, for instance, that you think that there’s only a 50-50 chance that capitalism will exist a year from now, and that you are considering buying shares of stock for \$10,000 today. If capitalism doesn’t survive, you’ll lose the whole \$10,000, so it would be better to spend the \$10,000 now, not invest it. You believe that this outcome is as likely as not, but you also believe that if capitalism does survive, the shares will be worth \$500,000 a year from now. If you are like most people, you’ll go ahead and invest.

Secondly, dozens upon dozens of experiments conducted by Nobel laureate Vernon Smith and colleagues (e.g. Smith, Suchanek, and Williams, 1988; Porter and Smith, 2003) during the past quarter century have demonstrated conclusively that people frequently invest in assets even when know that “capitalism” (i.e., its experimental equivalent) will soon perish. Participants in the experiments are given some cash and some shares of an imaginary equity. They are told that the shares will pay dividends for a fixed length of time, such as fifteen periods, and that the experiment will then end, at which point the shares will be worthless. The current fundamental value of a share – the sum of the average per-period dividends throughout the remainder of the experiment – is announced at the start of each period.<sup>6</sup> Participants can buy additional shares from other participants, sell their shares, or hold onto them and collect their dividends. At the end of the experiment, they get to keep their initial cash endowments, dividends, and any net capital gains they have obtained.

Now, B&N (2010, p. 3) claim to demonstrate that if capitalists believed that the system “would cease to exist at some future point,” then share prices “would have nowhere to trend but down,” and capitalists would therefore be unwilling to buy additional

shares. But even though participants in the experiments are *absolutely certain* that the system (i.e., the experiment) will soon cease to exist and that the asset's fundamental value is continually falling, share prices typically *rise* throughout much or most of the experiment – big bubbles are formed – and the volume of investment in additional shares is typically heavy. This has been the routine outcome even when the participants in the experiments are over-the-counter stock dealers, businesspeople, or students at the California Institute of Technology or the Wharton School.

Research into why this 'perverse' behavior occurs is still ongoing, but the basic reason why people buy shares that *eventually* become worthless, and whose prices must therefore *eventually* fall, is obvious. People think that they may well make a substantial profit in the *meantime*, by reselling the shares at prices higher than those they paid.

Finally, even if the rest of B&N's 'demonstration' were sound, it would not prove that capitalists are normally guided by the conviction that capitalism is eternal. At least it wouldn't prove this if we use the word "conviction" in the normal way. B&N are undoubtedly aware that it would not, since they write that "*consciously or not*, [capitalists] also think that the ritual that values their assets will never end" [emphasis added]. I doubt that "unconscious conviction" is a coherent concept, but even if it is, B&N's appeal to it turns what started out as a provocative and straightforward claim into a piece of unfalsifiable Freudian speculation.<sup>7</sup>

## II. Nitzan and Bichler's Critique of Marx

Marx's supposed logical errors are a major theme of Nitzan and Bichler's (N&B's) recent book.<sup>8</sup> They put forward what they call an "alternative" to both "mainstream and Marxist political economy" (p. xxv), and their main justification for doing so is technical and logical: Marx's value theory and mainstream economics are riddled with "circularities and contradictions" (p. 144). And since these theories are logically unsound, N&B argue, their alternative is not merely something they prefer; it and its further development are *needed*, objectively (p. 144). Because N&B focus on the logical issues at stake, my commentary shall do so as well, though I shall also discuss how Marx's value theory can help us understand the long-term problems that resulted in the Great Recession.

This part of the paper begins with a discussion of how N&B critique Marx for alleged methodological sins that they themselves commit. I then consider their critique of Marx's theory that real-world prices and profit are determined by the production of value and surplus-value. I will respond to their allegation—or, rather, their repetition of a hoary allegation—that Marx's theory of the value-price relationship is internally inconsistent. I will also respond to their critique of the temporal single-system interpretation (TSSI) of Marx's value theory, an interpretation that refutes this and other allegations that the theory is inconsistent.<sup>9</sup> Finally, I discuss their criticisms of Marx's distinction between

productive and unproductive labour, his concept of abstract labour, and the manner in which he “reduced” complex (skilled) labour to simple (unskilled) labour.

### A. Stone-Throwing

N&B complain that “Marx nowhere explains why the additional value-creating capacity of skilled labour should bear any particular relationship to the labour cost of acquiring the skill. The fact that an engineer trains 10 per cent longer does not mean she will create 10 per cent more value; it could also be 1 per cent, 20 per cent or any other number” (p. 142). Yet when they come to their own theory, they tell us that if one company’s market capitalization is a thousand times as great as the average capitalization, its owners are a thousand times as powerful as the owners of an average company (p. 313). Why 1000 times as powerful, and not 100 times or 2000 times or any other number?

They wish this problem away by *defining* power in terms of market capitalization: a market cap that is 1000 times as great as the average doesn’t *give* the owners 1000 times as much power; it simply *is* 1000 times as much power. This identification of capital and power—capital *as* power—is certainly not correct in a literal sense. As N&B (p. 312) cheerfully admit, it is a “figurative identity.” This means that *Capital as Power* is a work of fiction, or what they call a “scientific story” (p. 313).<sup>10</sup> Although they throw stones at Marx for quantifying the unquantifiable, they themselves live in a glass house.

In other words, if we were to assume for the sake of argument that *all* of their many technical objections to Marx’s value theory are valid, he would then be guilty of exactly what N&B are guilty of – measuring what cannot be measured, creating a “figurative identity” between things that are not identical, and using these fictional measures and identities to tell a “scientific story.” So what entitles them to *criticize* (what they take to be) his method, given that it is their method as well? Their apparent answer to this question is that

... we have seen what happened to liberal and Marxist analyses when they tried to imitate th[e] rigour [of natural science]. They pretended that there is a strict quantitative correspondence between prices, production and accumulation on the one hand and utility and labour values on the other, and then fell flat on their faces when they tried to demonstrate this correspondence. (p. 313)

Now, N&B themselves pretend that there is a strict quantitative correspondence between power and market capitalization. In that respect, then, there is no difference between their method and the method that Marx allegedly employed. Thus the only difference is that



they refrain from trying to *demonstrate* their pretend correspondence; they simply assert it as a “figurative identity.” But a glass house is no more shatterproof when one admits that it is made of glass than when one tries to demonstrate that it is made of brick. So N&B are still not entitled to throw stones.

### **B. Marx’s Alleged Inconsistency**

N&B’s allegation that Marx’s value theory is internally inconsistent focuses mainly on his account of the relationship between commodities’ values and their average prices (price of production). Marx claimed to show that the “law of value” on which *Capital* is based holds true at the level of the economy as a whole, even though the prices that individual companies and industries receive for their products deviate from the products’ actual values.<sup>11</sup> He argued that these price-value deviations merely cause value and surplus-value (profit) to be distributed differently; they do not alter the economy-wide aggregate value of output, aggregate surplus-value, or the economy-wide rate of profit. As N&B (pp. 99-100) recognize,

These aggregate equalities are crucial. ... [T]he rate of profit in price terms is equal to the rate of profit in value terms. It is through this determination of the rate of profit that the value system *anchors* the price system. ... Marx claimed his theory to be superior to the bourgeois alternatives, partly because it did something they couldn’t: it *objectively* derived the rate of profit from the material conditions of the labour process.

But they claim that Marx has been proven wrong. “Bortkiewicz ... demonstrated that Marx’s solution of pulling and redistributing is logically inconsistent” and that “it could be fixed only by making the rate of profit independent of the value system” (p. 99-100).

Yet N&B’s discussion of Marx’s alleged inconsistency is itself internally inconsistent. A few pages later, when discussing the TSSI, they implicitly shift to an agnostic position on the internal inconsistency question. In their discussion of the temporal aspect of the TSSI, they write, “There is really no way to decide which of these two methods [temporal valuation or simultaneous valuation] is ‘valid’. ... there is *no objective yardstick* ... to tell us which method to use” (p. 107). And when they discuss the single-system aspect of the TSSI, they write, “Proponents of the TSSI argue that this is what Marx had in mind. And maybe they are right” (p. 109). But if one aspect of the TSSI is not invalid, and its only other aspect is possibly what Marx had in mind, then the TSSI is possibly a correct exegetical interpretation of Marx’s theory.<sup>12</sup> And since this possibly correct interpretation eliminates the apparent internal inconsistencies in his theory, *a fact that N&B accept*,<sup>13</sup> it follows that the charge of inconsistency is possibly false. So while

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they wish to convict Marx of inconsistency, their own arguments imply that he is possibly not guilty.

*Price vs. Money, Value vs. Labour-time*

N&B's critiques of Marx and the TSSI are marred by a great many inaccuracies, most of which seem to stem from their apparent belief that Marx measured commodities' values exclusively in terms of labour-time, and not also in terms of money. For instance, they refer to "the issue of 'transforming the resulting *labour* values into *money* prices," and they assert that, "according to Marx, the value of a commodity *denotes* the abstract labour time necessary for its production" (p. 89, p. 96, emphases added). This belief is entirely unwarranted.

It is true that, in recent decades, many 'Marxian economists' have measured prices exclusively in money terms but values exclusively in labour-time terms – perhaps as a way of justifying their dual-system interpretations and revisions of Marx's theory –but Marx himself did not do so. In chapter 1 of *Capital*, vol. 1, he analyzed the "money form" of value, and he noted at the start of chapter 3 that "Money as a measure of value is the necessary form of appearance of the measure of value that is immanent in commodities, namely labour-time" (Marx 1990a, p. 188). And *Capital* is chock-full of examples in which values are measured in money terms. Here are a few, from chapters 7, 8, and 9:

... the sum of the values of the commodities thrown into the process [of yarn production] amounts to 27 shillings. The value of the yarn is 30 shillings. Therefore the value of the product is one-ninth greater than the value advanced to produce it; 27 shillings have turned into 30 shillings; a surplus-value of 3 shillings has been precipitated.

However useful a given ... means of production may be, even if it cost £150 or, say, 500 hours of labour, it cannot under any circumstances add more than £150 to the value of the product.

[During] six hours of labour he [the worker] has added a value of three shillings. This value is the excess of the total value of the product over the portion of its value contributed by the means of production.

[T]he value of this commodity is (£410 constant [capital] + £90 variable [capital]) + £90 surplus[-value]. The original capital has now changed from ... £500 to £590. The difference is *s*, or a surplus-value of £90. [Marx 1990a, p.

301, p. 314, p. 316, p. 320]

Because they are apparently unfamiliar with the fact that Marx measured value in terms of money as well as labour-time, N&B think that labour-time values need to be “transformed” or “converted” into money prices.<sup>14</sup> *They thus seriously misunderstand the issue that Marx addressed in his account of the transformation of values into prices of production, and Bortkiewicz’s critique of that account, and the single-system aspect of the TSSI.* They tell us that the “transformation problem” controversy is about Marx having supposedly mixed and matched variables measured in terms of labour time and variables measured in terms of money:

According to Bortkiewicz, the inconsistency occurs because Marx’s transformation is incomplete. It converts surplus value counted in labour time into profits counted in [money] prices, but it does not do the same for constant and variable capital. The resulting price system therefore is half-baked—partly [money] price denominated, partly [labour-time] value denominated. (p. 99)

This is simply not the case. The controversy pertains exclusively to alleged *quantitative* discrepancies between values and prices, and between surplus-value and profit. It has nothing to do with the units in which the variables are *measured*. (At least it *had* nothing to do with units of measurement before poorly informed commentators on the controversy got their hands on it a few decades ago). In other words, the controversy deals with the following kind of question: If the value of output and surplus-value in the economy as a whole are \$120 trillion and \$15 trillion, must the price of output and profit also be \$120 trillion and \$15 trillion, or can they be, say, \$105 trillion and \$25 trillion? It has nothing to do with whether a total price of \$105 trillion is equal or unequal to a total value of 1.2 trillion labour-hours; the very question is meaningless.

Bortkiewicz understood perfectly well that Marx measured value in terms of money:

the theory of the equality of total value and total price—a theorem to which Marx and the Marxists attach so great an importance—is generally wrong. ... This situation is in no way altered by the fact that *Marx thought of values and prices in terms of money*: (Bortkiewicz, 1952, pp. 10–11) [emphasis added]

*Bortkiewicz's Proof*

Thus, when he claimed to prove that Marx's account of the transformation was internally inconsistent, Bortkiewicz did not allege that Marx mixed and matched labour-time and money variables. He argued that Marx's account led to spurious *quantitative* discrepancies between, for instance, the amount of  $G$  (gold) spent to purchase machines and the amount of  $G$  charged by the producers of replacement machines. And he claimed to prove that this discrepancy implied a spurious "break[...] down" of the economy (Bortkiewicz, 1952, pp. 8–10), because the amount of  $G$  spent to purchase machines may well fall far short of what is needed to replace used-up machines.

But this 'proof' has itself been disproved (see, e.g., Kliman, 2007, ch. 8). The crux of the refutation is the recognition of a very simple fact: the amount of gold (or accounting money, etc.) received by the producers of *replacement* machines and the amount of gold spent on the *original* machines can and generally do differ, because the original machines are bought before the replacement machines are sold. Consequently, the difference between these two amounts does not mean that the amount of gold received by the producers of the replacement machines differs from the amount of gold spent *on replacement machines*, and it therefore does not imply any spurious breakdown of the economy. Notice that just as the "proof" does not involve any issue of units of measurement, neither does the refutation.

More than two decades have passed since the refutation of Bortkiewicz's "proof" was first published, and it has yet to be disproved itself. Laibman (2004, p.10), the only critic of Marx to have addressed it in print, has acknowledged that the refutation demonstrates that "Reproduction equilibrium exists between periods." In other words, Marx's account does not imply a spurious breakdown of the economy.

N&B (p. 99 and p. 99 n12) endorse Bortkiewicz's proof, but fail to explain why. They do not demonstrate that the refutation contains any error. They do not even acknowledge its existence, even though they certainly should be aware of it, since they cite three works (Kliman and McGlone, 1999; Kliman, 2004; Kliman, 2007) in which the refutation prominently appears.

Their silence on this matter is quite important, since what is at stake is the logical validity of Marx's theory that the "price" rate of profit of the real world is equal to and determined by the "value" rate of profit, i.e., the ratio of the amount of surplus-value pumped out of the workforce to the sum of value invested. Having supposedly proved that Marx's account was internally inconsistent, Bortkiewicz (1984) went on to produce a "correction" that fails to preserve this crucial aggregate equality. Yet if his proof is false, there is nothing to correct. Marx's theory of how the real-world rate of profit is

determined cannot properly be rejected by appealing to Bortkiewicz's results. But that is what N&B do.

### *Single-System Valuation*

Their apparent failure to understand that Marx measured values in terms of both labour-time and money also causes them to misunderstand the single-system aspect of the TSSI, and to allege that Marx's value theory becomes a "tautology" and a "dogma" when it is understood as a single-system theory (p. 109).<sup>15</sup> Once values and prices are no longer conceived as being determined in two separate systems, they argue, there is "nothing to transform in the first place":

The conventional Marxist approach argues that labour values are the *cause* of prices. This causal link is meaningful because the definitions of the two magnitudes are different. Prices are counted in money, whereas values are counted in labour time. ...

The setup of the TSSI is completely different. Here, there is no point in asking whether or not prices are equal to values, simply because values are *defined* by market prices. ... Labour is still held responsible, by definition, for the creation of all value in the aggregate. But it is no longer necessary for any of the underlying computations. ...

And since value is made proportionate to *both* price and labour time, it follows that prices are proportionate to labour time and that the labour theory of value is true before we even begin. ...

[The result] is not a scientific theory in the sense of cause  $X$ (value) explaining consequence  $Y$ (price). (pp. 108–109) [emphases in original]

These objections are based on N&B's mistaken belief that Marx measured values exclusively in labour-time terms and their consequent mistaken belief he tried to explain how labour-time magnitudes are transformed into monetary ones in his account of the transformation of values into prices of production. If these beliefs were correct, then the fact that the TSSI understands both the values and the prices of Marx's transformation account as *monetary* magnitudes would indeed imply what N&B think it implies, namely that the TSSI construes the values as well as the prices as *price* magnitudes rather than as value magnitudes. Hence, there would be "nothing to transform in the first place," and "the labour theory of value [would be] true before we even begin." It would also be an

empty tautology and a dogma. But since N&B's beliefs are not correct, none of these conclusions follow from the fact that values and prices are both measured in terms of money.

First of all, when the total value and total price of output are both understood as monetary sums, there still remains a "point in asking whether or not prices are equal to values" because it is conceivable that they differ *quantitatively*. For instance, if the capitalist class were able to create profit, in the aggregate, by selling commodities for more than they are actually worth – i.e., if monopolies and other firms that reap extra profit in this way were able to do so *without* reducing other firms' profits to the same degree – then total price (the aggregate monetary value received) would exceed total value (the aggregate monetary value produced). But Marx demonstrated in chapter 5 of *Capital*, volume 1 that extra value cannot originate in this way in the economy as a whole, and his account of the transformation of values into prices of production in chapter 9 of volume 3 is based on the same principle. Indeed, the overriding purpose of that account is to show that the existence of quantitative price-value deviations in individual industries does not contradict the notion that total price and profit are determined by and equal (quantitatively) to total value and surplus-value.

And contrary to what N&B claim, "cause  $X$  (value) explain[s] consequence  $Y$  (price)" is affirmed by the TSSI as well. In the first paragraph of the passage I quoted at the start of this section, they seem to suggest that causal links are meaningful only when the cause and the effect are measured in different units. This is simply not the case. The \$10 million in retirement taxes that a government collects is the "cause" (source) of the \$10 million in benefits that retirees receive, because the collection precedes the receipt and the prior collection of \$10 million fully accounts for the receipt of \$10 million. The fact that the tax revenue collected is measured in dollars rather than in labour-hours does not make the causal connection meaningless. By the same token, in Marx's theory and in the temporal single-system interpretation of that theory, the production of value and surplus-value precedes the receipt of value and profit by means of sale, and the prior production of value and surplus-value fully accounts for the amounts of sales revenue and profit received.

B&N's claim that "Labour ... is no longer necessary for any of the underlying [TSSI] computations" is also incorrect. As Table 2 illustrates, labour is a crucial determinant.<sup>16</sup> The total price of output is \$100 because the total value of output is \$100, and the total value of output is \$100 because workers' labour added \$60 of new value (and \$40 of existing value was preserved and transferred to the products during production). And workers' labour added \$60 of new value because, only because, value-creating workers performed 60 minutes of work and each minute of their work created \$1 of new value. The example simply stipulates the amount of new value that was created by

a minute of work, but this magnitude is in fact determined by actual data, prior to the start of production, and it can be estimated using available national account data (though N&B will surely say that the estimates are just as “meaningless” as official inflation estimates, which they also dismiss (p. 135). In sum, causation proceeds from left to right, following the arrow of time, so the total price of output, and thus total profit and the average real-world rate of profit, are determined by, but not determinants of, the other variables.<sup>17</sup>

**Table 2**

Branch	Pre-production	During production	Post-production	
	Value transferred from used-up means of production (a)	Value added by living labour (b)	Total value of output (a + b)	Total price of output
1	\$30	20 labour-minutes → \$20	\$50	\$65
2	\$10	40 labour-minutes → \$40	\$50	\$35
Total	\$40	60 labour-minutes → \$60	\$100	\$100

*Temporal Valuation*

I turn now to N&B’s discussion of the other aspect of the TSSI, temporal valuation. As I noted above (see note 12), their discussion of whether it is the right “method to use” and their agnostic position on this matter are not germane to the issue of the logical consistency of Marx’s theory. When the theory is construed as temporal (and single-system), it is consistent. If temporal valuation is not the right method to use, then the theory is consistent but wrong, which has no bearing on whether the TSSI is a correct exegetical interpretation.

However, N&B seem to suggest that it might not be a correct interpretation for a different reason. “According to Michael Perelman (1990), Marx himself left the issue open. He used antecedent (past) labour at the micro level of the firm and coexisting (current) labour at the macro level of capitalism as a whole” (p. 107). But Perelman’s argument *supports* the TSSI, because the production of commodities and their values takes place at the “micro level.” As he noted, “Marx held to the notion that the production of an individual commodity should be framed in the context of antecedent labour, as a

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*succession* of isolated labour processes... Co-existing labour is more appropriate for a discussion of ‘the production process in its continuous motion and in the entirety of its conditions, and not merely as an isolated action or a limited part of it’” (Perelman, 1990, p. 68). [Emphasis added; the interior quote is from Marx].

Although N&B say that temporal valuation is not invalid, they also write that:

the TSSI allows each barrel of oil to have its own value – depending on its particular temporal position in the production process. This difference allows the TSSI to appear more theoretically ‘robust’ than its conventional alternative – but that appearance is misleading. Obviously, if the same commodity can have multiple values, the likelihood of the valuation system as a whole being logically inconsistent is much reduced. (2009, p. 107)

It is very hard to make sense of this statement. Isn’t logical consistency a crucial part of what makes a theory or interpretation robust? Doesn’t the fact that the TSSI eliminates the apparent inconsistencies in Marx’s theory therefore make it a more robust exegetical interpretation? N&B make it seem as though logical inconsistency is a *good* thing.

Perhaps they meant to argue that it is easier to achieve consistency when one relaxes the restrictions imposed on a problem. That is certainly true, but robustness and difficulty are two different things. Kepler’s theory of planetary motion is more robust than Copernicus’ because it is more consistent with the facts, and it is more consistent with the facts because he relaxed the restrictions imposed on the problem – he did not try to force planets to move in circles. Or perhaps N&B meant to argue that although Marx’s theory is internally consistent when it is understood as a temporal theory, it becomes less robust in some other respect. But if this is what they meant, it is hardly an argument, since they fail to identify any other respect in which it becomes less robust.

### *Monopoly Prices and Limits to Monopoly Power*

N&B argue that “the labour theory of value requires perfect competition” and that the “existence of ... power institutions and processes” such as monopolies, oligopolies, and government intervention “makes labour values ... practically useless for the study of actual prices and accumulation” (p. 91). For this and other reasons, “the development of capitalism [has] undermined [his] logic” (p. 84).

But Marx’s value theory simply does not require perfect competition. He devoted *two hundred pages of Capital* to an analysis of land rent and agricultural prices that include rent as a component. As Marx (1991, p. 897) noted, “agricultural products are always sold at a monopoly price.” This is because a condition that is needed for



perfect competition to exist is absent in this case; the scarcity of arable land makes it difficult for new suppliers of land to enter the market.

So the emergence of monopolies and oligopolies as a dominant presence throughout the economy has not undermined Marx's logic. His analysis of monopoly price predates this new phenomenon, and monopoly prices (as well as market prices that differ from average prices and other prices besides perfectly-competitive ones) can be understood in a manner consistent with his value theory. N&B seem to think that prices can be "set 'arbitrarily' without any necessary link to production prices" if perfect competition does not exist (p. 91). Marx was either aware of or anticipated this objection, and he responded to it, once again, by making use of his demonstration that capitalists cannot create additional profit *at the level of the economy as a whole* by selling commodities for more than they are actually worth:

[If] a monopoly price becomes possible ..., this does not mean that the limits fixed by commodity value are abolished. *A monopoly price for certain products simply transfers a portion of the profit made by other commodity producers to the commodities with the monopoly price.* ... [it] leaves unaffected the limit of surplus-value itself. (Marx 1991, p. 1001) [emphasis added]

The prices of individual products depend and have always depended on a great many factors, not only the amount of labour needed to reproduce them. But this does not imply that their values are "practically useless for the study of actual prices." I do not see how struggles over intellectual property rights can be fruitfully understood without appealing to the principle that commodities' values are determined by the amount of labour needed to reproduce them. This principle certainly does not account for the current prices of things like software, but it does account for software owners' fierce struggle to protect their monopoly rights. If the law permitted software to be reproduced freely, its price would plummet to almost nothing, because almost no labour is needed to reproduce it and thus the cost of reproducing it is negligible.<sup>18</sup>

For another example, one of the most significant economic phenomena of our time is the dramatic fall in computer prices. The average price of 'computers and peripheral equipment' declined by 99.99% during the 50 years between 1959 and 2009.<sup>19</sup> Can there be any doubt that this decline is due predominantly to a massive increase in productivity, i.e., a massive reduction in the amount of labour needed to reproduce a unit of computing power?

*Falling Rates of Profit and Accumulation Underlying the Great Recession*

Computers are an extreme example, but not an isolated one. A decade ago, the orthodox Marxist who headed the Federal Reserve noted that

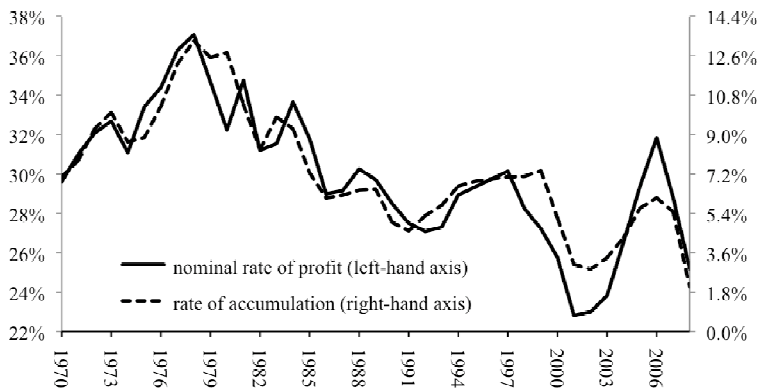
[F]aster productivity growth keeps a lid on unit costs and prices. Firms hesitate to raise prices for fear that their competitors will be able, with lower costs from new investments, to wrest market share from them.

Indeed, the increased availability of labour-displacing equipment and software, at declining prices and improving delivery times, is arguably at the root of the loss of business pricing power in recent years. (Greenspan, 2000)

The “loss of business pricing power” due to “labour-displacing equipment and software” is the crux of Marx’s law of the tendential fall in the rate of profit. This law, a crucial pillar of his theory of economic crisis, is a direct consequence of his value theory, particularly its key propositions that a commodity’s value is determined by the amount of labour needed to reproduce it and that aggregate price and profit are equal to aggregate value and surplus-value.

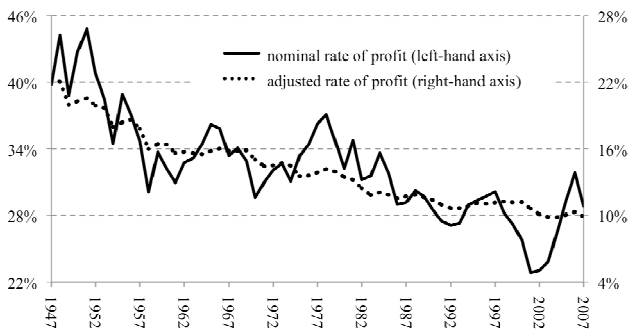
At least in the case of the U.S. (I have not studied other countries), the law of the tendential fall in the rate of profit possesses remarkable explanatory power, and it is tremendously significant for an understanding of the long-run conditions that set the stage for the Great Recession. The chain of causation runs as follows: (1) As I will show presently, the law accounts for almost all of the fall in the rate of profit of U.S. corporations during the six decades preceding the latest crisis, and (2) the fall in the rate of profit fully accounts for the sharp fall in corporations’ rate of accumulation since the late 1970s. (3) The fall in the rate of accumulation is in turn the principal cause of the chronic slowdown in economic growth. (4) The slowdown in growth, the falling rate of profit, and governmental policies intended to ameliorate the effects of, and perhaps reverse, the declines in growth and profitability have led to ever-rising debt burdens.<sup>20</sup> And (5) the massive burden of unpaid debt seems to be a crucial determinant of the length, severity, and persistent effects of the Great Recession.<sup>21</sup>

**Figure 2. The Rate of Profit and the Rate of Accumulation One-Year Later, U.S. Corporations**



I cannot document all of these claims here, but points (3) through (5) are not very controversial. As for points (1) and (2), let us first look at the relationship between corporations' rate of profit and their rate of accumulation of fixed assets.<sup>22</sup> Figure 2 shows that the relationship has been a remarkably tight one for four decades. And since movements in the rate of profit precede movements in the rate of accumulation by one or more years, the fall in the former fully explains the fall in the latter.

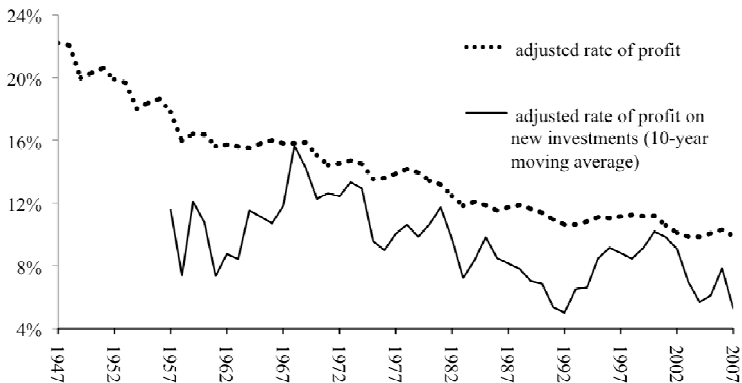
**Figure 3. Nominal and Adjusted Rates of Profit, U.S. Corporations**



But why did the rate of profit fall? Well, one factor that can cause it to change is a change in income distribution between profits and compensation of employees. Another is a change in the relationship between the money and labour-time measures of value. For example, when money prices rise in relationship to the amount of labour that is needed to reproduce commodities, this will raise the nominal (money) rate of profit. To ascertain the impact of these factors, I computed an adjusted rate of profit that holds them constant, thereby eliminating them as sources of variation in the rate of profit. As Figure 3 shows, they had very little effect on its trend in the long run. (Increases in money prices relative to labour-time values boosted the *level* of the nominal rate of profit substantially, but they had almost no effect on its long-run *trend*). Between 1947 and 2007, the nominal rate of profit fell by 11.0 percentage points while the adjusted rate fell by 12.3 points.

Thus, in order to understand why the rate of profit, the rate of accumulation, and the rate of economic growth fell, we have to understand why the adjusted rate of profit fell. To understand the mathematical reason why it fell, note that the average age of the people in a room has to fall whenever a new person enters the room whose age is less than the average age. In the same way, the overall rate of profit has to fall whenever the rate of profit on new investments is less than the overall rate. (The rate of profit on new investments is the extra profit that results from an extra dollar invested.) Now, as Figure 4 shows, the adjusted rate of profit on new investments was indeed consistently less than the overall adjusted rate of profit. So the overall rate had to fall.

**Figure 4. Adjusted Rates of Profit, Overall and on New Investments, U.S. Corporations**



The *economic* reason why the adjusted rate of profit fell has to do with the fact that the adjusted rate on new investments, toward which it tends, is an extremely close proxy for the ratio of (a) the growth rate of employment to (b) the share of profit that is accumulated, i.e., spent on productive investments (see Kliman, 2011, pp. 132–34 for the derivation of this result). Thus, the overall adjusted rate of profit fell because the ratio of (a) to (b) was consistently below the current overall adjusted rate. In other words, the adjusted rate of profit, and thus the nominal rate of profit, experienced a persistent fall because, *throughout the entire six decades, employment increased too slowly in relationship to the accumulation of capital to allow the existing rate of profit to be maintained. This is exactly how Marx's law explains the tendency of the rate of profit to fall* (Marx, 1991, ch. 15).

### *Additional Criticisms*

N&B make several other criticisms of Marx in their discussion of his theory of the relationship between values and prices. First, while Marx claimed to demonstrate, at the start of *Capital*, that the sole property that commodities have in common is that they are products of labour in the abstract, N&B endorse Eugen von Böhm-Bawerk's famous counterargument that Marx arbitrarily ignored some other possible common properties – utility, scarcity, and the commodities' existence as appropriated things. But Böhm-Bawerk's criticism is based on a misunderstanding of the object under investigation. At this point in *Capital*, Marx's aim was to identify a common property, not to identify the factors that enable things to exchange as commodities. "It is quite true that the things could not exchange as commodities unless they were scarce, owned, and useful. But none of these is a property of the things *themselves*; all are *relations between* the things and people. (Although the usefulness of things is dependent on their physical properties, usefulness itself is not such a property)" (Kliman, 2000, p. 105).

Second, N&B argue that it is not possible to "explain the trajectory of financial markets with Marxist tools" (p. 92). It is true, and Marx stressed at length, that there is no law of value underlying variations in interest rates. And for this and other reasons, there is only a tenuous relationship between commodities' values and the prices of debt instruments. But if the tools that Marx employed count as "Marxist tools," there is indeed a Marxist tool to explain interest-rate variations: the theory (which is not uniquely his) that they are determined by changes in the relationship between the supply of and the demand for loanable funds (see, e.g., Marx, 1991, p. 488). And the law of value can help explain equity-market phenomena such as the relationship between equity prices and companies' profits. As I discussed above, Marx's theory largely accounts for variations in U.S. corporations' rate of profit, and between 1946 and 2008, the correlation between the (before- and after-tax) rates of profit and S&P 500 corporations' earnings-to-price ratio

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of the following year was a far-from-negligible 0.595 (see Kliman, 2011, pp. 102–03). And Potts (2009, 2011) has employed Marx's concept of 'surplus capital' in order to argue that asset bubbles form partly because investment in financial instruments may tend to increase when a fall in the rate of profit depresses productive investment.

In any case, I do not see that the relative absence of 'Marxist tools' to explain financial phenomena is due to any inherent defect in his theories. If there are few such tools today, it is because Marx died before he could develop them – he noted in *Capital* that thorough analyses of credit markets and competition in the world market were “outside the scope of this work ... they belong to a possible continuation” (Marx, 1991, p. 205) – and because mainstream “Marxian economists,” who are staunch opponents of his work, have not wanted to develop them.

Third, N&B claim that Paul Samuelson 'demonstrated' that the transformation of values into prices of production is 'pointless.' Prices of production can be deduced directly from “real” data – physical input and outputs and real wages – “without any intermediate resort to labour values” (p. 100). But Samuelson demonstrated no such thing about *Marx's* transformation of values into prices of production. He showed that values are not needed in order to deduce the 'prices of production' of the simultaneous dual-system revisions ('corrections') of Marx. The “redundancy” of value is purely a consequence of simultaneous valuation. If prices and values are determined temporally, physical data are not the only proximate determinants of relative prices or values (see Kliman, 2007, ch. 5, esp. pp. 79–81).

Finally, N&B argue that Michio Morishima and Ian Steedman demonstrated that “there is nothing inherent in joint production to guarantee” that commodities' values are positive rather than negative, a result that is “potentially devastating for the labour theory of value” (p. 101). But if wool and mutton are only produced jointly, neither of them has a value on its own. The value of a commodity is determined by the amount of labour needed to reproduce it, and in this case we cannot say how much labour is needed to reproduce either wool or mutton on its own. The very notion is meaningless. What has a value is the joint product. Kliman and McGlone (1999, pp. 45–48) provide a temporal single-system account of the determination of joint products' values and prices. Their values cannot be negative, and all of Marx's aggregate value-price equalities are preserved.

## **C. Labour**

### *Productive and Unproductive Labour*

A whole chapter of *Capital as Power* is devoted to a critique of “the Marxist” distinction between productive and unproductive labour. But almost all of it is a critique of various

post-Marx Marxists' writings on the topic. N&B have extremely little to say about Marx's own distinction between productive and unproductive labour – which is quite surprising, given that hundreds of pages of his economic writings are devoted to it.

Marx is of course not responsible for what post-Marx Marxists have said, and I have no desire to take responsibility either. My response will therefore be limited to a discussion of the few things N&B say that have a bearing on Marx's own distinction between productive and unproductive labour.

Their *only* critique of Marx's distinction is the critical remark they make about his statement that an act of labour is productive only if it is "directly consumed in the course of production for the valorization of capital" (p. 120; from Marx, 1990b, p. 1038) [emphasis omitted]. On their interpretation, this means that the act of labour must be "tied to capital through the wage contract." And the problem with Marx's statement, they write, is that "even if we accept that capitalist control is a prerequisite for the creation of value, it is not clear why the only gauge for such control is the wage contract" (p. 120).

But "tied to capital through the wage contract" – which is not even an adequate rendering of "directly exchanged with capital," another condition that must be satisfied in order for labour to be productive – has little, if anything, to do with "directly consumed in the course of production for the valorization of capital." Marx uses the phrase "directly consumed in the course of production" to distinguish between (a) human activity that is part of a particular act of production and (b) human activity that – no matter how much it facilitates that act of production and no matter how necessary it may be for that act of production to take place – is not part of it. Activity (a) is productive if it also valorizes capital, i.e., creates surplus-value, while activity (b) is necessarily unproductive.

To understand this more clearly, consider the objection of Pellegrino Rossi to Adam Smith's distinction between productive and unproductive labour. Smith held that the labour of a magistrate is unproductive. Rossi argued against this that the magistrate's labour is *indirectly* productive. Other acts of production are almost impossible without it. His labour therefore "contributes to [other acts of production], if not by direct and material co-operation, at least by an indirect action which cannot be left out of account" (quoted in Marx, 1989, p. 190). Marx did not dispute the fact that it contributes in this manner, but he nonetheless rejected Rossi's attempt to efface the distinction between productive and unproductive labour: "It is precisely this labour which participates indirectly in production (and it forms only a part of unproductive labour) that we call unproductive labour. Otherwise we would have to say that since the magistrate is absolutely unable to live without the peasant, therefore the peasant is an indirect producer of justice. And so on. Utter nonsense!" (Marx, 1989, p. 190).

The following example will help to illustrate why the distinction between direct and indirect participation in production is crucial. Every workday, workers in some company directly create \$1000 of surplus-value. The manager puts the \$1000 in a box in

his office. But every day, one worker breaks into the office, takes the \$1000, and pockets it. So the company hires a guard to prevent her from doing so. Because it has to pay the guard \$100, the profit it keeps for itself is \$900, which is less than the total surplus-value, but much more than the \$0 profit it wound up with when the thefts were occurring. So the guard indirectly contributes to the company's profit; indeed, if the company is to wind up with any profit at all, his labour is absolutely necessary. But the \$1000 exists whether or not he shows up to work, so he does not directly create the surplus-value. To the contrary, the \$100 he receives deprives the company of one-tenth of it.

The reason why I have belaboured the distinction between direct production and indirect participation in production is that N&B are either unfamiliar with it or, for some reason they do not explain, choose not to respect it. They repeatedly try to efface the distinction between productive and unproductive labour on the grounds that some activity that has been classified as unproductive contributes indirectly to the production of surplus-value. For instance, they try to complicate the issue by noting that, although financial intermediation is often classified as unproductive activity, it "help[s] guide reproduction" (p. 112). Employees of insurance companies do work that "serve[s] to provide stability for production" (p. 113). And don't "government taxation, expenditures and subsidies, the legal code and the organized use of violence" "affect exchange values and surplus-values?" (p. 119). Yes; but they don't directly create them.

The point of these efforts to complicate matters is to argue, first, that the distinction between productive and unproductive labour is irredeemably fuzzy. And second, since Marx's value theory cannot do without the distinction, it is likewise irredeemably fuzzy and must be abandoned.<sup>23</sup> But it is N&B who are making them fuzzy, by ignoring the clear distinction between the direct creation of surplus-value and indirect contributions to its creation.

### *Abstract and Concrete Labour, Simple and Complex Labour*

The term *abstract labour* refers to homogeneous labour, labour as such, in contrast to the variety of heterogenous *concrete labours* (waiting tables, truck-driving, etc.). In Marx's theory, abstract labour creates value, wealth in the abstract, while concrete labour produces use-values, useful material products and effects. But, N&B charge, "No one, from Marx onward, has been able to measure the unit of abstract labour," so "Marxists do not even know what abstract labour looks like" (p. 143, p. 107). Consequently, the theory that the amount of abstract labour needed to reproduce commodities determines their values and aggregate prices is rubbish.

Actually, it was quite clear to Marx what abstract labour "looks like," because it is *real work*. And because it is real work, it is "measured in terms of time":



The work is not done twice over, once to produce a suitable product, a use-value, to *transform* the means of production into products, and a second time to generate *value* and *surplus-value*, to *valorize value*. ... All that is contributed is the labour of spinning, and so on, and through this contribution more yarn is continually produced. This *real* work creates value only if it is performed at a normally defined rate of intensity ... and if this *real work* of given intensity and of given quantity as measured in terms of time actually materializes as a product. (Marx, 1990b, pp. 991–992)

So Marx resolved the problem that N&B pose by noting that “the work is not done twice over.” Their claim that “Marxist political economy lack[s] a basic unit” (p. 7) is simply incorrect.

But N&B, who are evidently unaware of the manner in which Marx actually specified the unit of abstract labour, write that “Marx resolves this problem, almost in passing, by resorting to another distinction – one that he makes between skilled labour and unskilled, or simple, labour” (p. 139). (An hour of skilled (or complex) labour counts as a multiple of an hour of unskilled labour; if it counts as double, it creates twice as much value.) N&B say that this latter way of specifying the unit of abstract labour is “difficult to accept” because “[t]he very parity between abstract and unskilled labour seems to contradict Marx’s most basic assumption. For Marx, skilled and unskilled labour are two types of *concrete* labour whose characteristics belong to the *qualitative* realm of use value” (p. 139).

But Marx did not specify the unit of abstract labour in this way, and it cannot properly be specified in this way. That is because, contrary to what N&B assert, skilled and unskilled labour are both abstract labour. Hence, the unit of abstract labour *must already be identified before* an hour of skilled labour can be counted as a multiple of unskilled labour.

When we refer to simple and complex labour, we do not refer to simple weaving-labour or complex tailoring-labour, and so on, but to simple and complex labour-as-such. The commensuration of labours that produce different use-values is already *presupposed*. ...

Complex labour can be compared to, and thus reduced to a multiple of, simple labour, *only* because they lack any qualitative difference, i.e., only because both are abstract labour. As Marx [1990a, pp. 140–41] noted, ‘the magnitudes of different things only become comparable in quantitative terms when they have been reduced to the same unit’.

... When ... we consider doctoring-*labour* and janitorial-*labour* as labours of different kinds, it is meaningless to ask whether one is more skilled or complex than the other. Like can only be compared with like.

To compare the relative complexity of these two labours, their qualitative differences must thus be set aside. (McGlone and Kliman 2004, pp. 138–39)

*The upshot of all this is that, even if it were impossible to reduce complex labour to a multiple of simple labour, Marxist political economy would still not lack a basic unit, because the basic unit—a unit of real work, measured in terms of time—is specified independently of and prior to the reduction of complex labour to simple labour.*

Not surprisingly, N&B doubt whether complex labour can be reduced to a multiple of simple labour:

Now, skilled labour supposedly creates more value than unskilled labour, and the question is how much more? ...

Marx answered the question from the output side, by pointing to the greater ‘physical productivity’ of skilled labour. His solution, though, is both circular and incomplete. It is circular insofar as physical productivity can be compared across different commodities only by resorting to prices and wages. (p. 142)

I simply do not know what they are referring to here, and they provide no citation. Marx’s actual answer was completely different:

All labour of a higher, or more complicated, character than average labour is expenditure of labour-power of a more costly kind, labour-power whose production has cost more time and labour than unskilled or simple labour-power, and which therefore has a higher value. This power being of a higher value, it expresses itself in labour of a higher sort, and therefore becomes objectified, during an equal amount of time, in proportionately higher values. (Marx, 1990a, p. 305)

Thus, if the cost of reproducing the ability to do engineering work, when divided by the average number of hours an engineer works during his life, is \$40, while the hourly cost of reproducing the ability to perform simple tasks is \$10, then \$40 and \$10 are the hourly values of these two different kinds of labour-power, and the amount of value created during an hour of engineering work is likewise four times the amount of value created

during an hour spent performing simple tasks. If, for instance, an hour of simple labour creates \$20 of new value, then an hour of engineering work creates \$80 of new value. Notice that nothing in this answer appeals to the wages of the engineer or the regular worker.

The answer does appeal implicitly to prices, such as tuition at engineering schools, since the tuition forms part of the cost of reproducing the ability to do engineering work. But the answer is not circular because, in Marx's theory and in the temporal single-system interpretation of the theory, causation follows the arrow of time. The price paid *for the output*, the product or service that the engineer provides, is determined by, but not a determinant of, the amount of value an hour of his work creates.

But why does an hour of his work create four times as much value as an hour of simple labour? Why not twice as much, or 50% more, or any other number? As I discussed earlier in this paper, N&B claim that "Marx nowhere explains why the additional value-creating capacity of skilled labour should bear any particular relationship to the labour cost of acquiring the skill" (p. 142). And this is why they regard his answer as incomplete. But he does explain why, in the final sentence of the passage I just quoted.

It can be explained in another way as well: self-interested behavior by companies and workers will induce changes in the cost of reproducing engineering labour-power that tend to bring about the proportionality to which Marx referred. Assume that an hour of the engineer's work creates only 50% more value than an hour of simple labour, i.e., \$30. Firms would not hire engineers unless they could pay them less than \$30 an hour. But if they did so, engineers wouldn't recoup the cost of going to engineering school, since \$30 is much less than the \$40 needed to reproduce engineering labour-power. So the supply of engineers would quickly evaporate.<sup>24</sup> If that doesn't occur, we can infer that an hour of engineering work creates more than 50% additional value.

But what if an hour of engineering work creates, say, 3.5 times as much value as an hour of simple labour, \$70? Well, if we assume that people who perform simple labour are paid the value of their labour-power, \$10, then, unless engineers' hourly pay is \$35 an hour or less, firms still get a bigger bang for the buck by hiring people to do simple labour. The ratio of the value created by simple labour to the hourly wage of a simple labourer is  $\$20/\$10 = 2$ , while the ratio of the value created by an hour of engineering work to the hourly pay of an engineer is less than 2 if they are paid more than \$35 an hour. What would tend to happen, then, is that the demand for engineers would decline, and thus the supply of engineering students would decline. More costly engineering schools would shut down. Since those that continued to operate would be cheaper, the cost of reproducing engineering labour-power would fall. If it fell from \$40 to \$35, the result would be that the cost of reproducing engineering labour-power would be 3.5 times the cost of reproducing simple labour-power, \$10, and the amount of new value created by an hour of engineering labour, \$70, would be 3.5 times the amount of new value created

by an hour of simple labour. Marx's proportionality would hold true exactly.

Of course, the real world does not function in such a neat and frictionless manner, but it seems likely that Marx's proportionality is a serviceable approximation to what occurs in the world of appearances, and the best one available. It is certainly not the arbitrary stipulation that N&B suggest it is.

### III. Conclusion

This paper has shown that Bichler and Nitzan have not provided us with good reasons to accept that belief in capitalism's eternality is crucial to its continued existence, or that capitalists do normally believe that the system is eternal, or that they have come to fear its demise. The paper has also sketched out an alternative approach to questions of economic crisis and the future of capitalism rooted in Marx's value theory, in the course of defending that theory against their charges that it is logically unsound and that the development of capitalism since Marx's death has undermined his logic. By showing that none of Bichler and Nitzan's charges holds water, it has eliminated their main justifications for their claim that their "capital as power" theory is needed as an alternative to Marx's theory.

Charges that his value theory is logically unsound serve to disqualify it at the starting gate, depriving it of the opportunity to demonstrate its explanatory power empirically. In contrast, my response to Bichler and Nitzan's work, while quite critical, has not tried to disqualify their theory at the starting gate, on a *a priori* logical grounds, irrespective of empirical evidence. They are entitled to their theory. Marx is also entitled to his.

### Notes

- <sup>1</sup> They interpret a strong influence of *current* profits on share prices as evidence that investors are acting on the basis of the *current* situation, having abandoned their supposedly normal "conviction" that the shares will yield returns *ad infinitum* because capitalism is eternal.
- <sup>2</sup> An internally inconsistent theory may happen by accident to hit upon correct *conclusions*, but the *arguments* it provides in support of these conclusions are always invalid.
- <sup>3</sup> The correlation was negative between February 1961 and May 1964. If we count this as a distinct period and shorten periods 4 and 5 accordingly, the correlations during these periods increase to 0.92 and 0.82.

- <sup>4</sup> I computed a correlation of 0.65 for period 7, while B&N report a correlation of 0.64. My other results match theirs, so this slight discrepancy may be due to a recent revision of the data set.
- <sup>5</sup> Since I, like B&N, computed the correlations between 3-year average values, periods 4 and 5 use data from August 1950 through December 1973, which is almost exactly coextensive with the golden age as defined by Skidelsky (2010, p. 24) – the period “from 1951 to 1973.”
- <sup>6</sup> In some experiments, shares pay a fixed dividend. In others, participants are told what the possible dividends are and the probabilities that each will be paid.
- <sup>7</sup> As William James (1890, p. 163, emphasis omitted) noted, “the distinction ... between the unconscious and the conscious being of the mental state ... is the sovereign means for believing what one likes in psychology and of turning what might become a science into a tumbling ground for whimsies.”
- <sup>8</sup> When I cite page numbers below, but no authors or dates, I am referring to this book.
- <sup>9</sup> The TSSI differs from the standard (simultaneous dual-system) interpretation, which creates the inconsistencies that are attributed to Marx, in two simple respects. First, it holds that Marx understood values and prices to be determined temporally, which means that the values and prices of inputs can differ from the values and prices of outputs. Second, it holds that he understood value and price magnitudes to be determined interdependently. For instance, the sum of capital value invested depends on the prices of the means of production that are purchased, while the total price of output depends on the amount of new value created by living labour. See Kliman (2007) for further discussion.
- <sup>10</sup> They thus veer dangerously close to the postmodernism that they excoriate elsewhere (see, e.g, p. 2 n1).
- <sup>11</sup> In Marx’s theory, a commodity’s value is determined exclusively by the average amount of labour needed to reproduce it.
- <sup>12</sup> Since the TSSI does not try to show that Marx’s theory is true, it is actually irrelevant whether temporal valuation is the right “method to use.” The only relevant issues are whether he himself employed temporal valuation and whether his theory becomes internally consistent when it is interpreted as a temporal (and single-system) theory.
- <sup>13</sup> They write that TSSI authors’ “purpose is to show that [Marx’s] framework is logically consistent and fully in agreement with his analytical claims. But in the process of *achieving this purpose*, they seem to have shifted into reverse” (p. 109, emphasis added).
- <sup>14</sup> In a certain sense, this is so; they are “converted” by means of the quotidian procedure, which Marx analyzed in chapter 1 of *Capital*, of expressing how much a product of

labour is worth in terms of ounces of gold, dollars, etc., instead of in terms of labour-hours. But N&B are referring to a distinct, analytical operation.

<sup>15</sup> They and I agree that it is “logically inconsistent and plagued by insoluble problems” (p. 106) if it is *not* understood as a single-system theory.

<sup>16</sup> The value of each branch’s output is the sum of the value transferred from used-up means of production and the new value added by living labour. Because the example is too simple to illustrate the determination of the value transferred from used-up means of production, the relationship between the labour-time and money measures of value added, or output prices, I selected the magnitudes of these variables (and the amounts of value-creating living labour that are performed) arbitrarily. Thus the output prices could be prices of production, competitive market prices, monopoly prices, etc. The values and prices of output are in real rather than nominal terms—i.e., they are adjusted for any changes in the relationship between labour-time and money magnitudes that take place during the period—though Marx’s aggregate equalities hold true under the TSSI for nominal value and price variables as well. For further discussion of the temporal single-system interpretation of Marx’s account of the transformation of value into prices of production, see chs. 8 and 9 of Kliman 2007, esp. pp. 164–66. For further discussion of how the relationship between the labour-time and money measures of value is determined, see esp. pp. 185–89 of that work.

<sup>17</sup> I am referring here to the real magnitudes of these variables (see note 16 above). Their nominal levels are determined in a more complex manner.

<sup>18</sup> Potts (2007) explains that research and development expenditures do not augment commodities’ values, and he argues that this is why capitalists seek patents.

<sup>19</sup> My source is National Income and Product Accounts table 1.5.4, line 32, available from the U.S. Bureau of Economic Analysis at [bea.gov/national/nipaweb/Index.asp](http://bea.gov/national/nipaweb/Index.asp).

<sup>20</sup> For example, the ratio of U.S. Treasury debt to GDP increased by 71% between 1970 and 2007, but it would have *declined* by 19% if corporate income taxes had not fallen as a share of GDP. These taxes fell as a share of GDP partly because the rate of profit fell—there was relatively less corporate income to tax—and partly because the government shifted much of the effect of falling profitability from corporations to the public at large by lowering corporate income tax rates. For further discussion of this issue, see Kliman 2011, pp. 55–57.

<sup>21</sup> “These broader problems of debt and deleveraging arguably explain why the successful stabilization of the financial industry has done no more than pull the economy back from the brink, without producing a strong recovery. The economy is hamstrung—still crippled by a debt overhang” (Krugman and Wells, 2010).

- <sup>22</sup> Accumulation of fixed assets means investment in equipment and software, and spending to construct factories, office buildings, and other “structures.” The numerator of the rate of profit shown in Figure 2 is corporations’ net output (net value added) minus compensation (wages, salaries, and benefits) of employees. The numerator of the rate of accumulation is corporations’ net investment in fixed assets. The denominator of both rates is the net stock of fixed assets. All variables are valued at historical cost, and all data used to compute these variables and the derivative variables shown in Figures 3 and 4 come from the U.S. government. For further discussion of my data sources and computations, see Kliman 2011, chs. 5 and 7.
- <sup>23</sup> See, e.g., their remarks about the distinction between capitalist production and other forms of social reproduction on p. 121.
- <sup>24</sup> I am assuming here that the government does not subsidize their education. All else being equal, the subsidy is a wasted expenditure from the vantage point of a government interested in augmenting value, since engineering work doesn’t “pay for itself” (i.e., create more value than the engineers receive once the subsidy is factored in).

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# Kliman on Systemic Fear: A Rejoinder

Shimshon Bichler and Jonathan Nitzan

*Editors' Note: Andrew Kliman's paper in this issue, 'Value and Crisis: Bichler and Nitzan versus Marx', consists of two sections. The first section deals with Bichler and Nitzan's recent paper on 'Systemic Fear, Modern Finance and the Future of Capitalism' (2010). The second section takes issue with their earlier critique of Marx's labour theory of value (Nitzan and Bichler, 2009a), and offers an explanation of the global economic crisis. In the following rejoinder, Bichler and Nitzan address the points raised in the first of these sections.*

## Introduction

The first part of Kliman's paper isn't exactly a critique. The author doesn't engage our argument, and he shows no concern for the broader theoretical and historical context in which this argument is made. Instead, he looks for inconsistencies, discrepancies and incompatibilities – faults that in his view pull the rug out from under our entire analysis and make such engagement unnecessary to begin with. The gist of his complaint can be summarised as follows:

1. *Bichler and Nitzan, he argues, draw conclusions that their own data refute.* In their 2010 article they claim that, in capitalism, systemic fear is revealed solely by the breakdown of capitalisation (with stock prices being positively and tightly correlated with current earnings). They then argue that such a breakdown occurred only during the 1930s and 2000s, and use this observation to infer that capitalists have been gripped by systemic fear during these periods. However, according to the evidence that they themselves marshal, a positive and tight correlation also existed from the early 1950s to the early 1970s. And since the latter period wasn't one of crisis – in fact, it is commonly seen as the 'golden age' of capitalism – the notion that price-earnings correlations are indicative of systemic fear breaks down.

2. *Bichler and Nitzan erroneously assume that capitalism requires capitalists to believe that the system will continue forever.* The error here is both logical and empirical. Simple probability theory suggests that, for a high enough reward, most people will invest even when they believe that the capitalist system is very likely to collapse. And laboratory experiments, including those reported by Nobel laureates, show that people will continue to buy stocks that they know will become worthless by the end of the experiment. In other words, capitalists act like capitalists regardless of what they think about the future of capitalism.
3. *The very notion of systemic fear is entirely subjective and therefore useless for a scientific inquiry.* Bichler and Nitzan pretend to show that capital is a historical subject capable of bringing capitalism down, but their alleged demonstration relies on incoherent terminology and unfalsifiable Freudian speculations. Instead, they should go back to the 'good old fear' that capitalists feel when struck by a *real* crisis of *real* profit (as Marx already and perfectly explains in *Das Kapital*).

### **The Sleepwalkers**

Kliman's first point is correct, and we are grateful to him for having pointed it out to us. The positive correlation between share prices and current earnings indeed is *not unique to the 1930s and 2000s*. As he indicates, *a similar correlation exists from the early 1950s to the early 1970s* – a correlation that we overlooked and failed to mention in our paper. However, as this rejoinder shall show, the oversight is hardly critical. It can be easily corrected in a manner consistent with both our systemic-fear hypothesis and our broader notion of the capitalist mode of power.

To begin with, Kliman's personal anxieties notwithstanding, inconsistency need not be lethal. Note that we are dealing here not with a heteronomous dogma, but with the autonomous, living process of an ever-changing science.<sup>1</sup> And scientific discovery, unlike religious reiteration of eternal truths, is littered with oversights and errors. They are the bread and butter of the creative process, the serendipitous leeway that gives scientists the ability to tease order out of chaos. For academics concerned with the health of their career, errors are a recipe for disaster – a risk best avoided by limiting oneself to 'adoptions', 'interpretations' and 'critiques'. But for creative scientists, making errors – and negating them – is the only path to breakthroughs.

The Pythagoreans erred in their belief that every magnitude can be expressed as a rational number. This erroneous conviction, though, helped launch the remarkable triangle of democracy-science-philosophy, and the eventual refutation of that conviction created a much larger mathematics that incorporated irrational as well as rational

numbers. And the list continues. Kepler's astronomical research was bogged down for a decade by his supposition that celestial orbits were circular rather than elliptical, but that mistake sharpened his inquiry and hardly invalidated his broader thesis. Delambre and Méchain's mission to measure the standard meter was full of baffling inaccuracies, but those inaccuracies helped trigger the mathematical development of statistical estimates. Einstein's belief in a stationary universe didn't sit well with his relativity theory, creating an inconsistency that he solved by inventing a 'cosmological constant'; later on, when he accepted that the universe was expanding, the inconsistency disappeared and the constant became unnecessary (erroneous?); and nowadays, talk of an accelerating universe may end up giving the constant yet another lease on life. The works of Gardiner Means on administered prices and on the separation of corporate control from ownership, although subject to intense empirical criticism, remain two of the most fruitful starting points in twentieth-century economics.<sup>2</sup> Andrew Wiles' proof of Fermat's Last Theorem took seven years to produce, only to be found fatally flawed. But two years later, the error was corrected, the proof was accepted, and mathematics benefitted from novel hypotheses and new areas of inquiry that Wiles' torturous journey helped open up. Yutaka Taniyama, one of the greatest sleepwalkers of modern mathematics, was described by his collaborator Guro Shimura as sloppy to the point of laziness: "He was gifted with the special capability of making many mistakes, mostly in the right direction. I envied him for this and tried in vain to imitate him, but found it quite difficult to make good mistakes" (quoted in Singh, 1997, p. 174). This willingness to go astray enabled Taniyama to come up with a most fantastic conjecture on the symmetry between modular forms and elliptical equations, a conjecture that opened up multiple new mathematical horizons well before it was finally proven.<sup>3</sup>

We, too, sleepwalked. Our concern was systemic fear and systemic crisis, not 'business as usual'. We wanted to understand what happens not when capitalists are sure of their rule, but when they lose their confidence. We wanted to know how they act not when capitalism seems certain, but when it is put into question. And so we overlooked what in retrospect seems obvious.

### **The Broad Context: The Capitalist Mode of Power, Capitalisation and the Stock Market**

Kliman clings to a technical oversight, presenting it as a 'make-or-break' error for our broader argument. But by ignoring the argument itself and the overall framework in which it is developed, he ends up with a misleading caricature.

So let us reiterate the broad picture, if only in outline, and in the process try to clarify our argument and put things right. Our focus on the twin notion of systemic fear

and systemic crisis didn't come out of the blue. It emerged as part of a new approach to capitalism – an approach that offers an alternative to both neoclassical and Marxian political economies, and that we have articulated in many articles and books, including our recent *Capital as Power* (Nitzan and Bichler, 2009a). In 2008, we began to write a paper series on the 'Contours of Crisis'; a series that we hope to continue and eventually develop into a book (Bichler and Nitzan, 2008, 2009; Nitzan and Bichler, 2009b). The article 'Systemic Fear, Modern Finance and the Future of Capitalism' (Bichler and Nitzan, 2010) is an expanded version of the third installment in that series. The series introduces and develops the notions of systemic crisis and systemic fear – but it does so in steps, gradually rearticulating and refining the terms as the story continues to unfold.

Mainstream and Marxist political economies see capitalism as a mode of production and/or consumption. Consequently, they both adhere to a double separation – one between politics and economics; and another between the so-called real and nominal spheres of the economy itself.<sup>4</sup> In this framework, the nominal sphere of money, credit and finance is merely a mirror – accurate for the neoclassicals, distortive for the Marxists – of the underlying 'economic reality'. From this viewpoint, the only true crises are 'real' ones: crises of employment, production and consumption; crises of real profitability; crises of real accumulation, crisis of real investment, etc. These crises can be triggered by many causes, including government intervention, natural disaster, war, and, of course, finance. But whatever their origins, they become meaningful only insofar as they materialise in the underlying 'reality' of the economy.

Our framework is very different. Capitalism is not a mode of production and consumption, but a mode of power. To understand it, we start not from the narrow 'material' sphere of economics, but from the broad architecture of social power. And even when we deal with so-called economic processes, we focus not on productivity and well-being, but on the *power to control* productivity and well-being. In this framework, capital is not a technological/productive entity that is merely 'reflected' in finance. It is not machines, structures and work in progress, but a pure quantitative code of power. And that code is *financial and only financial*.

The central and by now all-pervasive algorithm of the capitalist mode of power is capitalisation: the discounting to present value of risk-adjusted expected future income. This is the ritual that constantly *creorders* – or creates the order – of capitalism's power institutions and process. Over the past century, capitalisation has expanded to encompass numerous aspects of social life – from the mindset and genetic code of individuals, to social organisations and institutions, and even the ecological future of humanity. But the most distilled and perfected form of capitalisation remains the stock market. This is the chief symbolic barometer of the capitalist outlook; it is the mechanism through which capitalists increasingly organise their world of strategic sabotage and differential accumulation; and it is the main yardstick with which they gauge their success and failure.

## Major Bear Markets

Systemic crisis is one that threatens the very future of capitalism. The first necessary feature of such a crisis is the existence of a *major bear market*. That was the starting point of our paper series. In ‘Contours of Crisis: Plus ça change, plus c’est pareil!’ (Bichler and Nitzan, 2008), we explained what we mean by such crises, identified their occurrence in the United States, characterised their main features, and speculated about their relationship to broad societal transformations.

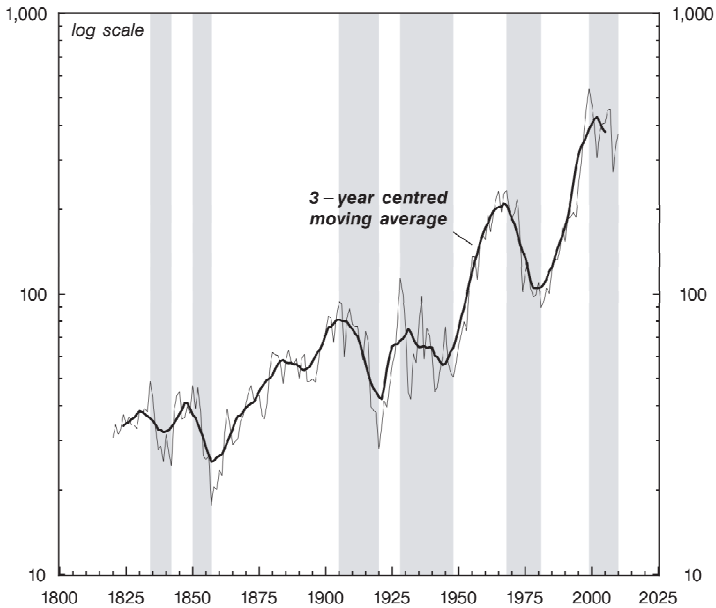
Since there is no agreed-upon definition for a bear market – let alone a ‘major’ one – we devised our own:

A major bear market denotes a multi-year period during which: (1) the 10-year centred moving average of stock prices, expressed in constant dollars, trends downward; and (2) each successive sub-peak of the underlying price series, expressed in constant dollars, is lower than the previous one.<sup>5</sup>

The reason for expressing stock prices in ‘constant dollars’ is that the capitalist outlook is always differential. Modern capitalists do not seek simply to increase their dollar assets, but to increase them *faster than the assets of others*. Now, one of the most basic benchmarks for such comparisons is the standard basket of consumer goods and services. If the price of equities rises faster than the price of that basket, equity price inflation ends up being higher than overall Consumer Price Index (CPI) inflation; the so-called ‘constant dollar’ price of equities increases; and equity owners end up doing better than the average basket owner.<sup>6</sup> (Of course, beating CPI inflation is merely the first step in a long sequence, whose ultimate achievement is beating the increase of *every* existing basket, but these further steps need not concern us here.)

According to the above definition, over the past two centuries, the United States has experienced six major bear markets. These periods are marked by the grey areas in Figure 1 and are listed in Table 1, along with the cumulative declines in stock prices.

Figure 1  
**U.S. Stock Prices in Constant Dollars**



NOTE: Grey areas indicate major bear markets, as defined in the text and in Table 1. The U.S. stock price index splices the following four sub-series: a combination of bank, insurance and railroad stock series weighed by Global Financial Data (1820-1870); the Cowles/Standard and Poor's Composite (1871-1925); the 90-stock Composite (1926-1956); and the S&P 500 (1957-present). The constant dollar series is computed by dividing the stock price index by the Consumer Price Index. The last data point is for 2010. Data are rebased with 1929=100.0

SOURCE: Global Financial Data (series codes: \_SPXD for stock prices; CPUSA for consumer prices); Standard and Poor's through Global Insight (series codes: SP500@40.D7 and SP500.D7 for stock prices); IMF through Global Insight (series code: L64@C111 for consumer prices).

Table 1  
**Major U.S. Bear Markets\***  
**(constant-dollar calculations)**

<b>PERIOD</b>	<b>DECLINE FROM PEAK TO TROUGH (%) **</b>
1835–1842	–50%
1851–1857	–62%
1906–1920	–70%
1929–1948	–56%
1969–1981	–55%
2000–2010	–50%

NOTE: The most recent sub-trough of the current major bear market occurred in 2008. It is not yet clear whether this sub-trough marks the end of this bear market.

\* A major bear market is defined as a multiyear period during which: (1) the 10-year centred moving average of stock prices, expressed in constant dollars, trends downward; and (2) each successive sub-peak of the underlying price series, expressed in constant dollars, is lower than the previous one.

\*\* The peak occurs one year prior to the onset of a major bear market.

Clearly, the 1950s and 1960s did not fulfill this first criterion of a systemic crisis: there was no bear market, let alone a major one. Although much of the emphasis during that period, epitomised in the triumphalist books of John Kenneth Galbraith (1958; 1967), was on the rising welfare-warfare state, the self-financing ability of the leading industrial corporations and the alleged demise of finance, the stock market actually boomed – and at growth rates that would make today’s neoliberals envious. Capitalism was not in crisis, and capitalists certainly had no reason to fear for its future. That is obvious enough.

### **Major Bear Markets and Societal Transformations**

Now, ‘Plus ça change, plus c’est pareil?’ wasn’t merely technical (Bichler and Nitzan, 2008). It further argued that the long-term ups and downs of the stock market, no matter how stylised and patterned, are not self-generating. They don’t just happen on their own.



Each of them has a reason, and that reason is deeply social and historically unique. Note that, during the twentieth century, *every oscillation from a major bear market to a bull market was accompanied by a systemic societal transformation*:

- The crisis of 1906–1920 marked the closing of the American Frontier, the shift from robber-baron capitalism to large-scale business enterprise, and the beginning of synchronised finance.
- The crisis of 1929–1948 signaled the end of ‘unregulated’ capitalism, and the emergence of large governments and the welfare-warfare state.
- The crisis of 1969–1981 marked the closing of the Keynesian era, the resumption of worldwide capital flows and the onset of neoliberal globalisation.

Moreover, the article pointed out that none of these transformations were ‘in the cards’. Most observers in the 1900s didn’t expect managerial capitalism to take hold; few in the 1920s anticipated the welfare-warfare state; and not too many in the 1960s predicted neoliberal regulation. All three transformations involved a complex set of conflicts; their trajectories were fuzzy, and their outcomes were all but impossible to anticipate.

In other words, underneath the seemingly *oscillating* long-term patterns of the market lies an *open-ended* and inherently unpredictable *creordering* of the entire political economy. Although past bear markets have always given way to long bull runs, these transitions were never automatic. Each and every one of them reflected a profound transformation of the underlying societal structure. This quantitative-qualitative correspondence, we noted, still holds. In order for the current crisis to end and a new long-term upswing to begin, the social structure must be transformed, and the key aspect of that transformation is the *creordering* of capitalist power.

### **The Capitalist Mode of Power: Approaching the Glass Ceiling**

While systemic crisis is always accompanied by a major bear market transformation, the reverse is not necessarily true: a major bear market does not have to be associated with systemic crisis. Systemic crises are ones that threaten the very future of capitalism, and these threats arise only when capitalist power approaches a *glass ceiling* and it becomes difficult if not impossible for capitalist power to increase under existing circumstances. These conditions are fairly rare, and they need not exist – and usually do not exist – in every major bear market.

How do we know that capitalist power is approaching its glass ceiling? The answer begins with the nature of capitalist power. Private ownership is created,

augmented and protected through organised exclusion, and organised exclusion is always a matter of power: it requires strategic sabotage and the threat and occasional use of force. Now, capitalism is historically unique in that everything that can be owned can be priced. And since ownership is based on power, relative prices quantify the relative power of owners: the greater the relative magnitude of the owned assets, the greater the power of their owner. In this sense, capitalism is deeply *differential*, and that differentiability is not static, but dynamic. Caught in a never-ending power struggle, capitalists are compelled to think of accumulation not absolutely, but relatively. They seek not to meet the average, but to beat it; not to keep their distributive share, but to raise it; not to run with the herd, but to butt ahead of it.

As we indicated in ‘Systemic Fear’, though, power is deeply dialectical. As an institution of power, private ownership is inherently conflictual: it requires organised exclusion, strategic sabotage and the differential exercise of force. And since capitalists are conditioned to accumulate differentially, their quest for further redistribution forces them to exclude *more*, inflict *greater* sabotage and *increase* the dose of force. But there is a built-in limit: no single capitalist or group of capitalists can ever own more than what there is to own. So from a certain point onward, further forceful redistribution is bound to run into mounting resistance; it gradually grows more difficult to achieve; and, eventually, it reaches its own envelope and becomes impossible to sustain.

This is the glass ceiling, the elusive yet imposing point of hubris to which we alluded in ‘Systemic Fear’. It is the societal point where the rulers, having reached their maximum power, seem completely confident in the obedience of the ruled. And it is the point from which their power and confidence has no where to go but down.

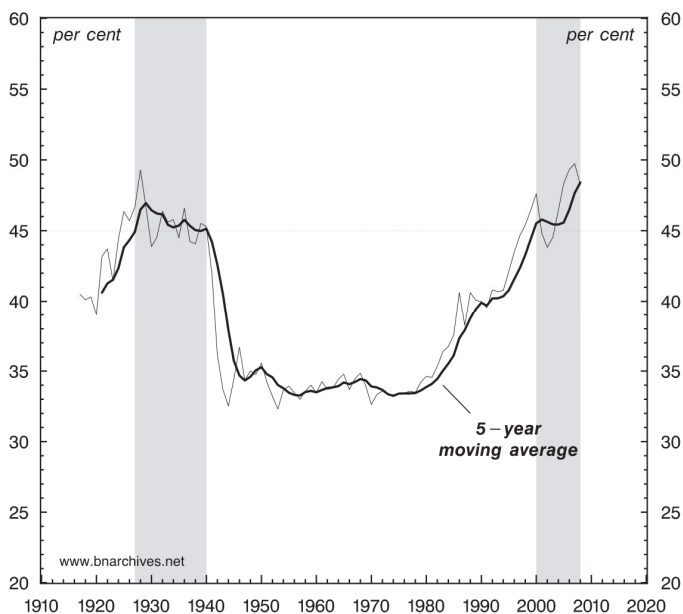
Have U.S. capitalists reached this point of hubris? In the second part of ‘Systemic Fear’, we noted that much of the postwar increase in stock prices was accounted for by the self-reinforcing convergence of redistributive power processes. During that period, there was a rise in the gross profit and interest share of capitalists in national income; a drop in effective corporate tax rates; a decline of profit volatility that reduced risk perceptions; and, since the early 1980s, a fall in the rate of interest that boosted corporate profit relative to interest payments and lowered the discount rate. Now, since these processes are self-exhaustive, the question is: at what point do they become impossible to maintain, and how far is the U.S. political economy from reaching that point?

One quick way to address this question is to examine the size distribution of income. This measure is far from ideal. Limited to income size, it says nothing explicit about the distribution between capitalists and non-capitalists (although it is reasonable to assume that much of the top income is earned by capitalists); it ignores the differential processes of accumulation that affect the distribution of income and assets *within* capital;

and it tell us little about the non-income power underpinnings of capitalisation.<sup>7</sup> But the size distributional measure has one major advantage: thanks to the painstaking work of a few researchers, its data are available for an extended period, from 1917 to 2008.

Such data are presented in Figure 2. The thin line shows the per cent share of 'market income', inclusive of capital gains, accounted for by the top 10% of the U.S. population. The thick line expresses the 5-year moving average of the underlying series.

Figure 2  
**Income Share of the Top 10% of the U.S. Population**



NOTE: Income is defined as 'market income', including capital gains; it excludes government transfers. Grey areas indicate periods during which the 5-year moving average of the data series exceeded 45%. The last data point is for 2008;

SOURCE: Piketty, Thomas, and Saez. 2004. *Income Inequality in the United States, 1913-2002*. Monograph, pp. 1-92. Updated until 2008 at <http://www.econ.berkeley.edu/~saez/TabFig2008.xls>; data sheet: data-Figure1 (retrieved on February 7, 2011).

The numbers draw a striking U-pattern, with its twin peaks marked by the 1930s on the left and the 2000s on the right. In both periods, the income share of the top 10% of the

population averaged over 45% and at some point approached 50%. And both periods are unique. In between, from the early 1940s to the early 1980s, the numbers are far lower, averaging less than 35% and hardly changing from year to year.

Of course, historical patterns per se do not reveal their own glass ceiling (which is why economists can never specify the maximum amount of profit, or the highest possible growth rate). But although there is no way to know for sure, it seems to us, however impressionistically, that 45% is fairly close to the glass ceiling for this measure. The bull market of the 1980s and 1990s was associated with a rise of more than 40% in the top's income share (from 33% to 47%, and to nearly 50% more recently), along with significant reductions in interest rates, effective corporate tax rates and profit volatility. And since the latter reductions would be difficult to replicate, a similar bull run from here onward would require the top income share to rise to more than 70%. Such an increase is highly improbable – that is, unless the U.S. turns into a dictatorship of the kind described in Jack London's *Iron Heel* (1907) or Vladimir Sorokin's *Day of the Oprichnik* (2011). And given that in the 1930s the top income share peaked at around current levels, it is not far fetched to take 45% as the Zeno-like cutoff point beyond which the ruling class enters hubris territory: confident in its enormous power, but aware that this power is difficult to increase much further.<sup>8</sup>

So now we have two criteria for systemic crisis: (1) a major bear market; and (2) extreme income and asset inequality, indicative of peak capitalist power and an inability to increase that power significantly. It is at this point, when these two conditions of systemic crisis are fulfilled, that systemic fear – fear for the very future of capitalism – becomes possible. And according to the available data, these two conditions have coincided only twice since the First World War: during the the late 1920s and 1930s, and again during the 2000s.

### **The Dominant Dogma and Forward-Looking Capitalisation**

Now, note that these two conditions imply a *potential* for systemic fear. To know whether capitalists have *actually* been struck by such fear, we need a third condition. And that third condition is the breakdown of forward-looking capitalisation.

In our 'Systemic Fear', we argued that, under the normal circumstances of 'business as usual', capitalists are conditioned by their dominant dogma to follow the ritual of capitalisation; that, in following this ritual, they express their belief that their system is eternal; and that this belief in turn implies that they are confident in their rule and in the obedience of the ruled (we deal with Kliman's objection to this point later in the article).

However, in times of systemic crisis – i.e., when capitalism is mired in a major

bear market, and when extreme inequalities, having pushed capital toward its envelope, make further increases in power difficult if not impossible to achieve – there arises the prospect of systemic fear. If that fear takes hold, with capitalists no longer certain of the future of their system, their ability to look forward is seriously impaired. And when looking into the future becomes impossible, the ritual of forward-looking finance breaks down.

One indication of such a breakdown, we argued in our paper, is a tight, positive correlation between the rates of change of stock prices and current earnings. When capitalists adhere to the capitalisation ritual, they price stocks based on the earnings trend all the way to the deep future (from the ‘standpoint of eternity’, as finance guru Benjamin Graham put it). But when capitalists are struck by systemic fear, the ritual breaks down, by definition. With the future of capitalism deeply uncertain, the long-term earnings trend becomes undefined, and undefined earnings cannot be incorporated into the capitalisation formula. So capitalists have to look for an alternative. They need something they are sure of and which is visible here and now. And that something, we argued, is current earnings.

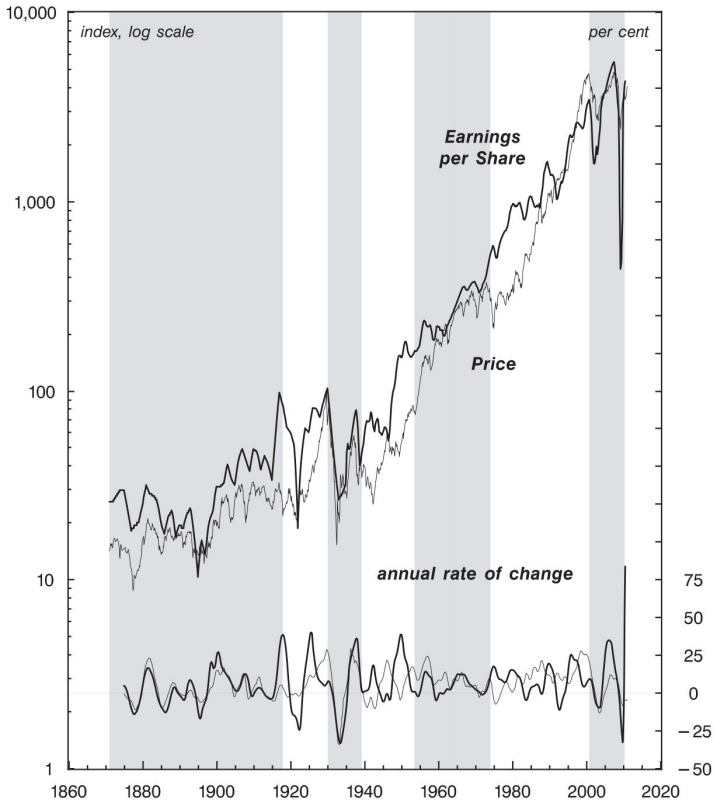
Now note the causal direction here: systemic fear creates a tight positive correlation between the growth rates of equity prices and current earnings. But the reverse isn’t necessarily true: *in and of itself*, a positive correlation between the growth rates of equity prices and current earnings does not necessarily mean that capitalists have been struck by systemic fear.

This point wasn’t properly articulated in our paper, so it is important to clarify it. To reiterate, according to the forward-looking capitalisation formula, equity prices discount the long-term earnings trend. *Current* earnings do not appear in the capitalisation formula, so in principle they should have no direct impact on share prices.<sup>9</sup> However, current earnings can still have an indirect, apparent effect. During certain periods, one or more of the capitalisation components can become correlated with current earnings, and if that happens, we may end up with a spurious correlation. For instance, changes in current earnings could be – and sometimes are – correlated negatively with changes in the rate of interest. And since the rate of interest features in capitalisation, the result could be a spurious correlation between the growth rates of current earnings and stock prices. Indeed, there is nothing to prevent such a spurious correlation from cropping up during periods of systemic fear; and if it does crop up, the impact of current earnings on equity prices may become more difficult to disentangle.<sup>10</sup>

For this reason, the correlation between the growth rates of stock prices and current earnings becomes meaningful *only* in times of systemic crisis. It is only then, when capitalism is pulled down by a major bear market and capitalists are approaching their hubris-point of peak power, that such a correlation could be taken as indicative of systemic fear.

Figure 3 shows the levels and rates of change of equity prices and earnings per share (with rates of change expressed as 3-year moving averages). The grey areas indicate periods of high positive correlation between the rate-of-growth series at the bottom of the figures (including the period pointed out by Kliman). The correlation coefficients for the different periods are listed in Table 2.

Figure 3  
**S&P 500: Price and Earnings per Share, 1871-2011**



NOTE: Earnings per share denote net profits per share earned in the previous twelve months. Monthly earnings are interpolated from annual data before 1926 and from quarterly data after 1926. Stock price data are monthly averages of daily closing prices. Both series are expressed in \$U.S. and rebased with September 1929=100. The last data

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points are June 2010 for earnings per share and January 2011 for price; SOURCE: Robert Shiller, [http://www.econ.yale.edu/~shiller/data/ie\\_data.xls](http://www.econ.yale.edu/~shiller/data/ie_data.xls).

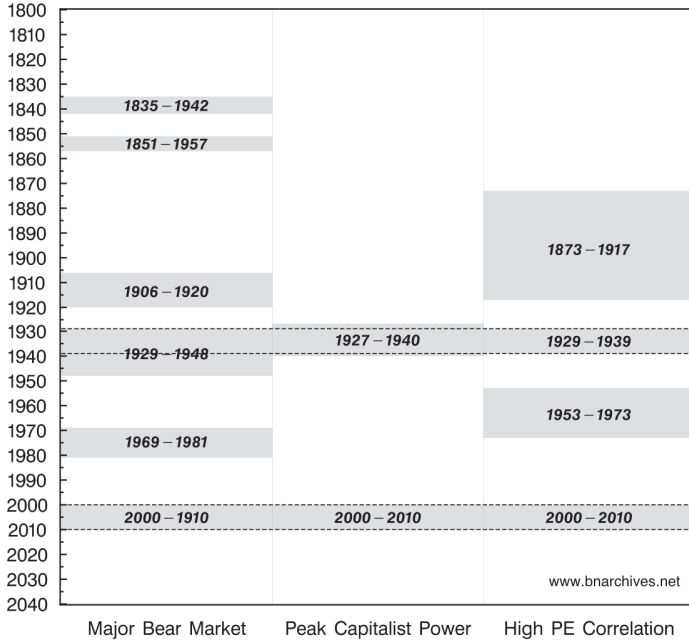
Table 2  
**S&P 500: Pearson Correlation Coefficient Between the Annual Rates of Growth of Price and Earnings per Share**  
(Monthly data expressed as 3-year moving averages)

	PERIOD	CORRELATION COEFFICIENT
	Jan 1873 – Oct 1917	+ 0.72
	Oct 1917 – Mar 2010	+ 0.35
<i>Sub periods</i>	Oct 1917 – Dec 1929	+ 0.29
	Dec 1929 – Feb 1939	+ 0.89
	Feb 1939 – Jun 1953	– 0.34
	Jun 1953 – Aug 1962	+ 0.90
	Aug 1962 – Dec 1973	+ 0.80
	Dec 1973 – Sep 2000	– 0.20
	Sep 2000 – Mar 2010	+ 0.65

SOURCE: Figure 3.

The data show four periods of high positive correlation: the period leading up to 1917; the 1930s; the early 1950s to the early 1970s; and, finally, the 2000s. But based on our earlier discussion, only two of these periods can be associated with systemic fear. This association is summarised in the timeline of Table 3, which provides data on our three criteria for systemic fear. The table covers the period from the 1820s to the present, although the data coverage is uneven and allows conclusions to be drawn only from 1917 onwards.

Table 3  
**Criteria for Systemic Crises in the United States**



NOTE: Grey areas denote periods of (1) major bear markets; (2) peaks of capitalist power as indicated by extreme income inequality; and (3) periods of a high positive correlation between the growth rates of share prices and earnings per share. The dashed lines delineate the two periods that fulfil all three criteria: 1929–1939 and 2000–2010.

SOURCE: Figures 1, 2 and 3.

- The first criterion is a major bear market, based on the long-term trend and pattern of the stock market expressed in ‘constant dollars’. Based on these considerations, the United States has experienced six major bear markets since the 1820s.
- The second criterion is peak capitalist power, based on extreme income inequality. This condition has been fulfilled twice since 1917: from 1927 to 1940 and from 2000 to 2008 (with the stock market having recovered since 2008, it is not far



fetched to assume that income inequality continues to hover at peak levels). Combining these two conditions, we can conclude that only two of the four major bear markets since the beginning of the twentieth century have contained a systemic crisis: the periods from 1929 to 1940 and the period from 2000 to 2010.

- The criterion for systemic fear is systemic crisis during which the rates of change of stock prices and current earnings are tightly and positively correlated. Such positive correlation existed during four periods since the 1890s. But only two of these periods were ones of systemic crisis: 1929-1939 and 2000-2010.<sup>11</sup>

In sum: Kliman found an oversight in our paper on ‘Systemic Fear’ and celebrated it as if it pulled the rug out from under our entire argument. But that oversight, although inconvenient and regrettable, hardly dents our broader argument. Capitalism remains the first mode of power to offer a quantitative indicator for systemic fear. This indicator involves the convergence of three conditions that we have discussed at great length in our work: a major bear market, a glass ceiling of peak capitalist power, and the breakdown of the dominant dogma of forwarding-looking finance. And these conditions have coincided only in the two periods indicated in ‘Systemic Fear’ – the 1930s and the 2000s.

### **Toward Behavioural Marxism?**

But Kliman claims that the problem is not only empirical; it’s also theoretical. Think of a situation, he says, in which ‘you’ (the investor?) believe that capitalism is about to collapse, but you are not entirely sure (the probability of collapse is less than 100 per cent). Next, assume that someone comes along and invites you to make a small investment that will yield an extremely high rate of return. If capitalism collapses, you lose your investment (no pain, no gain); but if it doesn’t, you become fabulously rich (fulfilling your mission on earth). Now, between you and me (wink), wouldn’t you grab this golden opportunity and invest? And given that you would go ahead and invest (assuming you are like most people – i.e. most capitalists), isn’t your decision a clear proof that the future of capitalism is irrelevant for capitalists (like you)?

And if the logic of greed isn’t enough, there are the scientific experiments. According to Kliman, these experiments repeatedly show that ‘people’ (capitalists?) continue to invest in stocks, almost to the very end. They invest when earnings go up; they invest when earnings come down; in fact, they invest even when they know, with certainty, that earnings will converge to zero and that the equities they buy will become worthless at a definite point in time. And since these experiments show that the investment behaviour of people (capitalists?) is more or less independent of the future of their system (i.e., the end of the experiment), the very notion of ‘systemic fear’ – at least in

the way that Bichler and Nitzan describe it – is irrelevant and in fact meaningless.

These are very interesting claims, particularly when coming from a fundamentalist Marxist.<sup>12</sup>

Marxism correctly rejects the neoclassical dogma. The neoclassical tenets – egocentrism, the emphasis on individual rationality, the belief that the market is natural, the sanctification of private property and the rejection of societal planning, to name but a few – are not natural laws, but the mere objectification of the capitalist creed. According to Marxist epistemology, the autonomous, utility-maximising individual is an oxymoron; an impossibility that can be concocted only by the misguided ideological servants of capital. From the viewpoint of Marxists, human beings are not stand-alone entities, but creatures of their society. They have a certain freedom to think and act, but in the final analysis, their thoughts and actions are bound by the class relations and the forces of production of their own historical epoch.

Adhering to this epistemology, though, has proven easier said than done. Although critical of the liberals, Marxists have by and large failed to develop their own accounting system, their own unique data and their own dedicated research methods. And so, gradually, pressed by academic necessity and tempted by the available alternative, they have gravitated toward the ever-expanding databases and increasingly sophisticated methods of their class enemy, the bourgeoisie.

During the 1950s and 1960s, Marxists started to use the capitalist national accounts and measurements of the ‘capital stocks’. But there was a hefty price to pay: the derivation of these quantities relies on the very assumptions that Marxists correctly reject. ‘Real GDP’, for instance, is aggregated based on the supposition that the statistician knows equilibrium prices, and that these equilibrium prices reflect the relative utilities of the produced goods and services. Similarly with the ‘capital stock’: its magnitude, which many Marxists cite without a second thought, is taken to measure the util-generating capacity of the underlying machines and structures. And so, paradoxically, when Marxists routinely employ such measures to denote economic growth rates or the pace of capital accumulation, they end up endorsing the conceptual tools with which the ruling capitalist class manages society, as well as the individualistic-hedonic-equilibrium ideology that this ruling class imposes.<sup>13</sup>

And that is just for starters. In subsequent decades, many Marxists began using bourgeois econometrics, and in so doing abandoned the last vestige of dialectics. They developed closed models with mathematical propositions and proofs, and in so doing made their arguments increasingly ahistorical. They succumbed to the elegance of game theory, and in so doing accepted the rational-atomistic starting point of conventional economics. And now we learn from Kliman that it is perfectly fine for a Marxist to invoke the findings of experimental economics and behavioural finance.

Now, as noted, our own work starts from finance. This choice has nothing to do with convenience or fashion. We start from finance because *finance is the heart and brain of the modern capitalist mode of power*. The capitalisation ritual of finance is the algorithm with which capitalists *creorder* their society, and the relative magnitudes that emerge from that ritual map the ever-changing terrain of capitalised power. Deciphering modern finance is the initial step for any understanding of how modern capitalist power is organised, imposed and altered.

Kliman, though, adheres to a different approach. For him the only real capital is one created by production denominated in socially necessary abstract labour time (or its 'real' price equivalent). The rest – i.e., finance – is a speculative operation in the sphere of exchange that sometimes matches and sometimes mismatches the movement of actual capital. And whatever has to do with speculations, bubbles and other mismatches or distortions can be safely delegated to the neoclassical experiments of Nobel laureates and the psychological analysis of behavioural finance.

But then, if this is the micro-Marxism Kliman has to offer, it is a strange one indeed: a representative experiment of representative gamblers, sans quotes, who serve to represent the universal human bourse, with no classes, no struggle, no dialectics, for ever and ever. Note that the participants in Kliman's experiments are not capitalists, but 'people' (in America everyone has an equal opportunity to buy up Microsoft or sleep under the bridge). These people are examined not in a real, power-based society, but in a laboratory 'game' for which they are hired or volunteer (since, at the moment, the experiment is still too complicated for rats). There is no ruling class, no power belt and no underlying population of workers, unemployed and the redundant. There is only a collection of Marshallian 'representatives'. These ideal types play their game not in order to control their society and shape their world, but simply to make a buck (the universal drive of all people at all times, even if the buck happens to be hypothetical). And most importantly, the questions they face have no bearing on their own future, let alone on the future of their society. Once the experiment is over (and capitalism ends) they can go home and forget all about it.

The ultimate purpose of these experiments is to discover, once and for all, the eternal human 'nature' of the universal investor – and in the process to annul the very heart of Marxism. According to Alan Greenspan, this human nature can be conventional, or perverse. What matters, he explains, is "not whether human response is rational or irrational, only that it is observable and systematic" (Greenspan, 2008). And perhaps Kliman feels that Marxists have much to learn from these natural-state-of-things models that the capitalist rulers impose on themselves and on their subjects. What remains unclear, though, is how any of this relates to the long-term outlook of the capitalist ruling class. To use simulated stock market experiments to tell us about the *systemic* confidence and fear of present-day capitalists is like using a chess game to understand the mindset of

the French nobility during the French Revolution, or a board game of Monopoly to understand the anxiety of capitalists during the 1930s.

In our paper, we claimed that capitalist belief in the permanence of capitalisation is a prerequisite for investment. This is a foundational claim. It deals not with this or that profit flow, with this or that asset, or with this or that capitalist. Instead, it refers to the basic institution of the capitalist mode of power: the institution that makes finance in general and capitalist calculations in particular possible to begin with, the institution that pervades everything capitalists do, the institution that holds their power structure together. The validity of our claim is tied to the centrality of this institution, and that is why we expressed our claim hypothetically, as a thought experiment. This is also why we brought different historical examples of systemic collapse – from the fall of the last Babylonian emperor Belshazzar, to the French Revolution, to the collapse of the Soviet Union – instances during which a latent but deep crisis *suddenly* gave way to disintegration. The crises themselves had different causes; but what made them culminate in collapse, we argued, was that the rulers were struck by systemic fear: they lost their confidence in their own dogma and their ability to rule. And such losses – as well as their consequences – are difficult if not impossible to predict.

“[T]he future comes disguised”, says Coetzee; “if it came naked, we would be petrified by what we saw” (1990, p. 163). To ask what will happen to capitalism if capitalists become convinced that capitalisation is about to end is like asking what will happen to the ecosystem if earth surface temperature rises by 25 per cent. No laboratory, even one run by a Nobel laureate, can replicate this process.

Finally, Kliman invokes the ‘S’-word: Bicher and Nitzan, he says, have turned capital into a ‘Subject’, capable of triggering its own demise, and they have voiced this claim using tongue-twisting concepts and irrefutable Freudian conjectures. We prefer to remain silent on the second allegation. The interested reader can judge for herself by reading our articles and books. But we have to plead guilty to the first accusation. Capital is certainly a subject, and with a capital ‘S’ to boot. In fact, if we are to remain true to Marx, we should add that, save for rare revolutionary situations, capital is the *only* social subject, the entity that subjugates all else – capitalists as well as workers – to its will and rage.

### **Marxists Contra Marx**

Kliman seems to have been deeply offended by our position ‘versus Marx’, as he puts it, so a few closing comments about this subject may be in order.

We have the greatest admiration for Marx as a revolutionary scientist, and we have learned a great deal from his path-breaking work on the capitalist system. But like Marx (and unlike many Marxists), our real interest is not in Marx, it is in capitalism.

Marx tried to trace the intricacies of human history, to map its progressive breakthroughs, and to understand its regressive setbacks. He focused on the critical aspects of the capitalist regime, searching for weak points in the fortified walls that protected the capitalist rulers. He tried to anticipate the development of capitalism, to identify the inner contradictions that would pave the way for a revolution.

But Marx's work mirrored his own epoch. And as capitalism continued to develop and mutate, his theories, research and conclusions have become less and less congruent with the ever-changing reality. As a result, radicals have come to face two mutually exclusive options. In the words of Cornelius Castoriadis, they have had to decide whether to remain revolutionaries or 'Marxists'. To choose the former meant to take from Marx what seemed true, insightful and useful – and to let go of the rest. To choose the latter meant to sanctify all of Marx's writings and then constantly 'reinterpret' them to fit the shifting reality.

Some radicals chose the former path, but many more took the latter. After Marx's death, there emerged numerous congregations and sects, each with its own theological interpretation. Until the 1960s and 1970s, the fault lines were largely geopolitical. The main debate was between Moscow and Beijing, with subsidiary interpretations emerging later on in lesser communist capitals, such as Belgrade, Havana and Pyongyang.

The unravelling of Stalinism and Maoism and the winding down of the Cold War shifted the centre of gravity to the universities of Europe and North America. But that shift hasn't liberated the Marxists from Marx. Instead of an open-ended scientific debate on the changing nature of capitalism, there developed a closed theological debate about the eternal nature of Marx's writings (what did Marx *really* mean?). There are exceptions – some of which are ingenious – but for many Marxists the key questions have become those of how to appropriate the prophet's writing; and of what might be done to fortify the faith.

The consequence is a minute division of labour, not unlike the neoclassical one, between different groups of Marxists and post-Marxists, each of which specialises in protecting a different section of the Great Marxist Wall. There are experts on the 'young Marx', on 'Marxist philosophy' and on 'Marxist dialectics'. Some deal with the 'Marxist theory of the state', while others focus on 'cultural Marxism'. There are pundits for 'analytical Marxism', 'Marxism and game theory', and 'Marxist anthropology'. There are even those who claim to do 'political Marxism' (suggesting that Marxism can also be *a*-political). Within 'Marxian economics' proper, there are those who do 'crisis', others who do 'regulation and the social structures of accumulation', and still others who do 'investment and profit rates'. There is even a specialisation in 'fictitious capital' and its various distortions. The list goes on. Of course, not all of these specialists are defensive of the dogma, but many are.

At the analytical heart of these specialised endeavours stand the experts on Marx's labour theory of value and surplus value. Most Marxists are unfamiliar with the intricacies of this theory, and most 'productive labourers', however defined, would probably find its language impossible to understand – that is, assuming they even tried. But this theory is the foundation stone of Marx's science.<sup>14</sup> It is the key to understanding capitalist exploitation, capitalist development, and, eventually, capitalism's own demise. It has to be defended, if only in appearance.

This is the forte of Andrew Kliman. His own section in the Great Marxist Wall is the theory's internal 'consistency'. This section has been somewhat weakened since Bortkiewicz, but not to worry. A new and improved reading of the theory – the Temporal Single System Interpretation, or TSSI – has recently been applied to the weak points, and apparently it works wonders.<sup>15</sup>

For defenders such as Kliman, the key thing is to save Marx from deviant interpretations. Our 2009 *Capital as Power* contains a systematic critique of liberal and Marxist theories of capital and the elementary particles of utils and abstract labour on which these theories rest; it develops an alternative approach to capital based on power; it offers an analytical, historical and empirical exposition of a new theory of differential accumulation; and it provides a new history of the capitalist mode of power. In short, it is an important book to ignore – and, indeed, so far no Marxist has reviewed it. Even Kliman, who broke the wall of silence, is careful to ignore the gist of our framework, theory and findings: his main concern is to defend his own defence of Marx's value theory – a defence that our book deals with only briefly.

Sadly, the zeal to defend Marx has caused many of the defenders to lose their grip on reality. The period since 2000 has seen capitalism rocked by major turbulence, and the free-market dogma has been challenged openly from within and without. Liberal economics – including its macro and micro variants, its Keynesian and Monetarist inflections, its expectations and game theories – seems to have lost its intellectual compass, and there have been open calls on Nobel laureates to return their Sveriges Riksbank Prizes. This has been the historical opportunity Marxists have been waiting for since the 1930s, and they seem to have missed it. Instead of developing new theories and new research programmes, they were busy defending Marx and ridiculing or simply ignoring radicals who tried to transcend him. And when the time finally came, they were caught off guard. Marxists today talk of speculative-fictitious bubbles and the tendency of the rate of profit to fall, of a too-weak or a too-strong state, of capitalist irrationality, greed and corruption. But deep down inside, many of them know that these reiterations belong to the world of yesterday. They offer no serious challenge, let alone an alternative, to the current capitalist mode of power.

## Notes

- <sup>1</sup> The difference between heteronomy and autonomy is articulated in the social and philosophical writings of Cornelius Castoriadis – see, for example, his *Philosophy, Politics, Autonomy* (1991).
- <sup>2</sup> Means' claim that there were in fact two types of prices – administered prices as well as market prices – was brilliantly defended against charges of empirical error levelled by Chicago School Nobel laureate George Stigler, but eventually swept under the carpet by the economics profession. By contrast, his empirical data on the separation of corporate control from ownership were shown to be faulty by the relatively unknown Marxist Maurice Zeitlin, yet continue to inform mainstream business studies (see Berle and Means, 1932; Means, 1935, 1972; Stigler and Kindahl, 1970, 1973; and Zeitlin, 1974).
- <sup>3</sup> One of the first, and still unparalleled, histories of cosmology is Arthur Koestler's *The Sleepwalkers* (1959), a story that is nicely complemented by Simon Singh's more recent *Big Bang* (2004). On the measurement of the standard meter, see Alder's *The Measure of All Things* (2002). The development of mathematics is told in Singh's *Fermat's Last Theorem* (1997).
- <sup>4</sup> These dualities are introduced in Part I of *Capital as Power* (Nitzan and Bichler, 2009), and are further developed in the rest of the book.
- <sup>5</sup> This definition is more precise than the one in Bichler and Nitzan (2008). In the original article, we referred to a downtrend in stock prices. Here we operationalise this downtrend as a falling 10-year centred moving average.
- <sup>6</sup> The measurement of 'constant dollars' involves significant theoretical and philosophical quandaries that economists are yet to solve. Our concern here, though, is not the logical underpinnings of the measurement, but the mindset of capitalists. And since capitalists take constant-dollar measures for granted, these difficulties need not distract us (for more on these issues, see Nitzan, 1992: Chs. 5 and 7).
- <sup>7</sup> On the differential ratio of net profit to wages, see Bichler and Nitzan's 'Elementary Particles of the Capitalist Mode of Power' (2006: Figure 5). On capital's share of national income, aggregate concentration and differential accumulation, see Nitzan and Bichler's *Capital as Power* (2009a: Figure 13.1, p. 274; Figure 14.1, p. 318; and Figure 14.2, p. 320).
- <sup>8</sup> Elsewhere in our work we examined the differential process by which capitalist power breaks through its geographic-societal 'envelopes' – from the industry, to the sector, to the national setting, and, finally, to the global arena (e.g. see Nitzan, 2001; Nitzan and Bichler, 2009a, Ch. 15). In this process, the power of capitalists that are based in one region or country could expand by creating, altering and taking over capitalist power in

other regions and countries. U.S.-based capitalists have done so after the 1930s by raising the profit share of their foreign subsidiaries from 5 per cent to over 30 per cent of the total. But since this redistribution too is self-limiting, a repeat of that process nowadays seems less than likely.

- <sup>9</sup> Current earnings feature in capitalisation only insofar as they alter the long-term earnings trend. In the case of corporate equities, this impact usually is negligible and can be ignored.
- <sup>10</sup> For example, during much of the period from the early 1950s to the early 1970s, the rates of change of equity prices and the rate of interest were negatively correlated (with interest rates measured by the tax-free yield on AAA municipal bonds). This negative association means that, during that period, the observed correlation between the rates of change of equity prices and current profits identified by Kliman may have been spurious. The same cannot be said about the 2000s, since the rates-of-change correlation between equity prices and the rate of interest during that period was *positive*. The case of the 1930s is more ambiguous. There was a negative correlation between the rates of change of prices and the rate of interest, but the variations of the rate of interest were very small relative to the variations in current earnings, suggesting that their impact on prices was probably far smaller than the impact of current earnings.
- <sup>11</sup> Although it is probably too early to tell, the 2010 data in Figure 3 suggest that the correlation between the rates of change of stock prices and current earnings is no longer positive. A continuation of this situation would mean that capitalists no longer suffer from systemic fear.
- <sup>12</sup> For the difference between neo-Marxists and fundamentalist Marxists, see for example Sherman (1985).
- <sup>13</sup> For more on the individualistic-hedonic-equilibrium assumptions of ‘real’ economic measurements, see Nitzan (1989) and Nitzan and Bichler (2009a: Chs. 5 and 8).
- <sup>14</sup> Marx claimed his theory to be superior to the bourgeois alternatives, partly because it did something they couldn’t: it *objectively* derived the rate of profit from the material conditions of the labour process. Prices of production, writes Marx, “are conditioned on the existence of an average rate of profit’, which itself ‘*must be deduced out of the values of commodities* ... Without such a deduction, an average rate of profit (and consequently a price of production of commodities), remains a vague and senseless conception” (Marx, 1909, Vol. 3, pp. 185-86, emphasis added). This same point is reiterated by Engels: “These two great discoveries, the materialistic conception of history and the revelation of the *secret of capitalist production through surplus value*, we owe to Marx. With these discoveries *socialism became a science*. The next thing



was to work out all its details and relations' (Engels, 1966, Section I, emphases added).

- <sup>15</sup> According to Kliman and McGlone (1999, pp. 33-34), the TSSI "vindicates the internal consistency of Marx's most challenged theoretical results without relinquishing his theory's quantitative determinacy or absorbing it into the theories of his critics", and "is able to make sense out of crucial aspects of [Marx's] value theory that the standard interpretation (and others) have always found to be incoherent" (p. 55). See also Kliman (2004; 2007).

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