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Minsky's legacy: two strands

Dirk J. Bezemer^{*}

This review article assesses the legacy of Hyman Minsky on the occasion of two newly published books. It identifies two strands of research building on Minsky's ideas and his research practice, which was eclectic. These two strands draw inspiration from, respectively, a 'Money View Minsky' and a 'Model Minsky'. They represent different ways of doing economics, and they highlight, respectively, the microeconomic and macroeconomic dimensions of the Minskian analysis. Their compatibility hinges on the contested issue of aggregation in the financial instability hypothesis. This paper presents reviews of the books, and it highlights the diversity and the tensions in interpretations of Minsky's work.

Key words: Minsky, Money View, Modelling, Profit equation, Fallacy of composition
JEL classifications: B15, E12, E44, G10, P1

Both books are interpretations as much as overviews. The message will be that beyond the central theme in Minsky's work—that capitalism is financial capitalism, tending to instability in good times—two alternative interpretations are emerging. They favour, respectively, a focus on cash flow and liquidity and a focus on the economy's capital development and employment. An assessment of their relation involves the issue of aggregation in the financial instability hypothesis (FIH) and the possibility of a fallacy of composition in Minsky's use of Kalecki's profit equation. The argument in this paper will be that the two interpretations of Minsky's legacy are distinct but compatible.

2. Minsky and the Money View

Daniel Neilson wrote his 2009 dissertation with Perry Mehrling, proponent of the 'Money View' (Mehrling, 2013, 2020) inspired among others by Minsky (Mehrling, 1999). This approach centres on the 'survival constraint' (or 'settlement constraint'), a concept coined by Henry Simons. Minsky, who studied with Simons in Chicago, adopted the survival constraint in his dissertation. Neilson's project in this book is to bring out how it was an organising principle throughout Minsky's career. The book is meant to be 'a concise outline of Minsky's thought, but that outline is the consequence

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of my own synthesis and consolidation' (p. 2; in this section II, page numbers without reference refer to [Neilson, 2019](#)). In the introduction, Neilson hints that Minsky's thought offers something larger than his published work: '[Minsky] put that vision to use and in the process left us a legacy: the trace of an underlying, never fully spelled out theory. That theory, as I will show, though it is certainly present in Minsky's published work, does not stand perfectly well on its own in its original form' (p. 2). Neilson probably means by this theory the Money View, which draws on Minsky but not only on Minsky. So this is not a biography, not even an intellectual biography, let alone an attempt to pin down 'what Minsky really meant'. It is Neilson's presentation of Minsky's work, viewed as a precursor to the Money View. As an 'outline of Minsky's thought', which is what a reader expects in a book titled 'Minsky', it has deficiencies. But the approach sheds light on a continuity in Minsky's thought that I have not seen discussed elsewhere. This is the key merit of the book.

2.1 *A bird's eye 'Money View' Minsky*

The central tenet of the Money View is that the need to make payment is the all-important motivation in economic and financial life—much as utility maximisation is assumed to be the all-important motivation in a neoclassical conceptualisation of the economy. Agents' behaviour, as well as the structure of the modern economy with sophisticated financial markets, can be usefully studied through this lens, and it is claimed in the Money View. Neilson's book is a well-written, accessible introduction to this side of Minsky. In eight clearly structured chapters, Neilson traces the development of Minsky's ideas insofar they are linked to the Money View, discusses some of the major themes he addressed throughout his life and brings out their coherence. The book is helpful both for readers new to Minsky and for those who seek to build in their research and teaching on Minsky's work.

Interwoven with the exploration of key themes—the centrality of position making and settlement, market-making and dealers, the role of the central bank—are perceptive discussions of Minsky's major writing projects in chronological order, helpfully set in a different font. Among those milestones in his scholarly life were [Minsky's 1964](#) report to the Commission on Money and Credit, his 1965 editorship of a book on the California banking system and his contribution to a study on poverty in America in the same year. All are discussed as illustrations of the development of Minsky's thought, down to his last and longest 1986 book. What we get is an understanding of the connections between Minsky's intellectual development and the themes he addressed and developed in his work.

Without the 2007 'Great Financial Crisis', there would not be the interest in Minsky that we see now. Although the crisis was not a part of Minsky's experience, it is a big part of our motivation to study him. It is, therefore, right that Neilson concisely describes that crisis, and then throughout the book illustrates Minsky's insights with assessments and reflections by regulators and key industry actors on the events of 2007 and 2008, taken from the 2011 report of the US Financial Crisis Inquiry Commission.

Yet, this is not another 'crisis book'. The theme of the last chapter, 'Minsky for all moments', pervades all chapters. Minsky's contribution is not just that 'stability is destabilising' nor is it a guide to spotting 'Minsky moments' in the markets. Minsky left us a theoretical view on the functioning of financial capitalism. He was motivated by the same ambition to grasp the system's internal logic as his mentor Joseph Schumpeter

was. He had the same attention to institutional detail and to path-dependent evolution as had his other mentor Henry Simons. Neilson's presentation of Minsky balances these theoretical and institutional concerns. His selection of quotes from the 2011 Financial Crisis Inquiry Commission report shows the enduring relevance and usefulness of combining both.

It is clear that Neilson has not just read all of Minsky's writings but also digested them, resulting in perceptive observations. Minsky's 1975 book on Keynes is indeed not really about Keynes. His name is primarily used to present the two-price theory of investment building on Irving Fisher's work,¹ ideas 'visible already in his early work, before they are framed as unreconstructed Keynesianism' (p. 97).² Minsky's 1986 book, widely seen as his magnum opus, is indeed in need of serious editing, or as Neilson (p. 100) puts it, 'disorienting in its breath, its repetitiveness, and the tendency for key insights to be buried among unrelated discussions'. It should be viewed more as 'an archive, ... an attempt to capture every contribution in a single place' (p. 101) than as a coherent and to-the-point explanation of how to stabilise an unstable economy.

Minsky is sometimes viewed as a maverick economist (Wray, 2015) and often behaved as one. Although he was welcomed into the fold of post-Keynesians, he only reluctantly identified as one (pp. 96–97)—at least initially.³ Yet by all outward signs, Minsky was part of post-Keynesianism from its very start in the late 1960s. He spent a sabbatical in Cambridge (UK) in 1969–70. He was present at the first meeting of American post-Keynesians with Joan Robinson in late December 1971, which included Eichner, Davidson, Asimakopulos, Harris, Boulding, Chick, Kregel and Nell (Lee, 2009, p. 83). In the preface to his *John Maynard Keynes* (1975), he notes discussions with Joan Robinson and the influence of Kaldor, Weintraub and Davidson. He published in the *Journal of Post Keynesian Economics* and he participated in all the post-Keynesian summer schools in Trieste, Italy, in the 1980s.⁴ In his writings, he reflected on post-Keynesianism not from the outside but as a participant (Ferri and Minsky, 1989). But he was as much an American institutionalist in the tradition of Veblen and Commons as an American post-Keynesian economist—to the extent that this distinction can be made; the two schools substantially overlap in what Whalen (2019)⁵ calls 'post-Keynesian Institutionalism'.

2.2 Cash flow or income?

Because this is Neilson's interpretation of Minsky, what we get is a very financial Minsky. There is little discussion in terms of frameworks such as the National Income and Product Accounts, which in the Money View are fundamentally different from

¹ The two-price theory of investment is not original with Minsky but with Irving Fisher (1930). The 'Fisher Separation Theorem' states that investment decisions are independent of financing decisions. I thank Jan Toporowski for the Fisher origin of the theory.

² This tallies with King's (1995, p. 12) assertion (cited in Lavoie, 1999, p. 79) that the young Minsky had never read Keynes' General Theory.

³ King (1995) views his 'Post-Keynesian identity in doubt up until 1975'. According to Mehrling (2015), Minsky found his way to Keynes 'through Kalecki's frame' after 1970 and only in *John Maynard Keynes* (1975), 'finally embraced Keynes'. See also Mehrling (1999). An anonymous referee who knew Minsky disagrees, asserting that long before, that Minsky had a good understanding of Keynes.

⁴ I thank Marc Lavoie for supplying this information.

⁵ I thank Mario Secceracia for suggesting this article.

the financial logic of the survival constraint. For Neilson and Mehrling, the focus is very much on the financial system and on the financial dimension of the ‘real’ sector. The lens through which capitalism is viewed is that ‘everyone is a bank’ since all units engage in mutual liability acceptance. Their theoretical focal point in understanding capitalism is the need to settle, the survival constraint.

Any role for the survival constraint follows from the very nature of entrepreneurial capitalism, in Schumpeterian fashion. It would have been helpful to make this a more explicit motivation for the book’s focus on the survival constraint. Entrepreneurial capitalism requires innovations, which require credit. Because innovations are truly novel events with unforeseeable consequences, it is inevitable that the anticipated profits are not always forthcoming, and that the debt that financed them will, therefore, be defaulted upon from time to time (more likely, in clusters of defaults). At such moments—which are not exogenous shocks, but whose occurrence is part and parcel of the system itself—the survival constraint binds and bites. They are the ‘Minsky moments’. Although they must be reckoned with, their probability is not calculable. There is true uncertainty, not just risk. A central theme in Mehrling’s ‘Money View’ is that pushing back in time the moment when the survival constraint binds is the one thing that all economic actors do every day; this logic explains much of their actions. The moment when payment is due is the moment of truth, and all actions at other moments are to be understood as anticipations of the time of settlement. And because actors are connected through their balance sheets, these individual actions explain much of the system’s dynamics.

The Money View perspective is all about the implications of the presence of the survival constraint for the evolution of financial structures. Analytically, this is an immensely powerful approach, as Neilson demonstrates by consistently holding onto it throughout the book. But I miss an analysis of how Minsky connected the survival constraint to investment, incomes, jobs, growth and structural transformation—elements that other Minsky-inspired work does include. For instance, see [Burlamaqui and Kregel \(2005, p. 12\)](#)⁶:

The most basic element of the economy is cash flow, and the most basic constraint on economic behaviour is the “survival constraint”, which requires that cash outflow not exceed cash inflow if existing stock positions are to be maintained ([Minsky, 1978, p. 157](#)). Because the exact coordination of payments is impossible, even this simple constraint involves finance. From that perspective, finance and financial relationships are fundamental because they oxygenate economic units, allowing them to purchase without previous savings; and they make growth and structural transformation possible, by providing current purchasing power to those who would use it to expand the boundaries of the system.

Neilson explicitly emphasises a cash flow perspective over an income perspective. Cash flow is the financial, liquid component of profit (and other incomes). The settlement constraint is a *cash* settlement constraint. Income such as profit may or may not be realised, and, therefore, in the Money View, income in general and profit in particular are not the binding constraint guiding behaviour. Profits, in this view, are only a proxy for the cash flows that really count—so why give them analytical significance? When it comes to the crunch, liquidity, the ability to ‘force a positive cash flow’

⁶ I thank Riccardo Bellofiore for bringing this quote to my attention.

in Minsky-speak, is everything, in the Money View. The settlement constraint is not a budget constraint, Neilson emphasises.

Is this true to Minsky? There is certainly ample reason to emphasise the importance of financing arrangements in Minsky's work. Bellofiore (2012, p.105) notes that '[b]efore he was called a post-Keynesian, he would call himself a "financial Keynesian"'. Minsky deemed this 'a label that is more descriptive of the perspective I take in economic theory and policy' (Minsky, 1988, p. 23). And beyond this importance of finance in general, more specifically Minsky often writes about the 'success or failure of actual cash flows to validate prior commitment to pay' (Minsky, 1989, p. 127). But equally, and despite this 'actual', he uses this equivalently with non-cash flow "future profit" (on the same page) or elsewhere 'profit'. Neilson (p. 68) actually quotes Minsky (1980A): 'profits are critical in a capitalist economy because they are a cash flow which enables business to validate debt...', commenting: 'here Minsky goes wrong. Profits are income, not cash flow; only when profits are paid as promised are they a source of positive cash flow and a lure for investment'. It appears that the cash flow primacy viewpoint is more Neilson and Mehrling than Minsky.

Did Minsky indeed go wrong, as Neilson asserts, with his focus on profit (not just cash flow) and a link to macroeconomic outcomes such as investment and jobs? These were central to his work. In *Capitalist financial processes and the instability of capitalism* (1980A), Minsky not only writes about the importance of profit to validate debts but also uses the national accounts framework—the antithesis of cash flow-focussed analysis—to introduce Kalecki's insight that investment drives profit. Although Kalecki's (1971, pp. 82–83) profit equation is an identity, it can be given a compelling causal interpretation by observing that (debt-financed) investment can be realised without prior profit, but profit cannot be realised without prior (debt-financed) investment—that is, without firms first injecting, with the help of banks and other financial institutions, the necessary liquidity into the 'circular flow' of the economy. Minsky argued that financial overextensions leading to disruption undermine investment and, therefore, profit and the ability to meet from profit the debt commitments that were agreed in rosier times. In Minsky's work, the survival constraint is not the ground for everything else, but it is itself grounded in profit and investment. Investment gives rise to profit that allows the economy to satisfy its survival constraint.

In this perspective, the survival constraint must be met *at the level of the economy*, not just by the entrepreneur. Kalecki's framework is a macroeconomic framework and not one of atomic individualism. Minsky adopted this framework throughout his writings at least from 1977 and he used it explicitly in many of them. In a posthumously published conference paper (Minsky (2013A)[1986]), he discusses Kalecki's relevance to his work most explicitly. To restrict Minsky's macroeconomic framework to an individual cash flow perspective is to sever the link to the national accounts framework that Minsky himself was trying to make throughout his work from 1977. He made this link because he wanted to talk about the implications of financial structure for the economy's capital investment and jobs, not only about its financial logic. Maybe, in the Money View perspective, this was a hopeless quest and Minsky went wrong indeed. Neilson (p. 112) deems the use of Kalecki's profit equation by Minsky in the context of the financial fragility framework 'arguably idiosyncratic', and he is not alone, as we shall see below. In any case, connecting microeconomic finance with macroeconomic outcomes was very much Minsky and might have found a place in this book.

Meanwhile, where does this leave the distinction between cash flow and income? Minsky wanted to understand the formation of the economy's incomes and their ability to validate liability structures. In the process, as far as this reviewer can see, he equated cash flow profit to accounting profit or (as in *John Maynard Keynes*) 'retained earnings'. To the extent that profit components other than cash flow (notably, depreciation) or ways of profit realisation other than as cash (notably, in near-moneys) play a decisive role in the analysis, Neilson's criticism that Minsky went wrong would be warranted. This criticism could be made stronger and analytically more interesting by identifying how precisely the neglect of this distinction matters and where the identification of national accounts profit with cash flow profit breaks down.

One may hazard that perhaps in the *ex ante* analysis, where the anticipation of profit motivates the build-up of liability structures, the difference between expectations of future profit and expectations of future cash flow does not matter much. In fact, non-cash flow profit may motivate borrowing just as much as cash flow profit; in Minsky (1980A, p. 517), this part of the analysis is explicitly about 'anticipated' retained earnings. In this sense, the Money View may be too narrow. *Ex post* it may matter greatly how much of the expected profit was realised as cash flow—but not so much in tranquil times, when any cash shortfall can be easily borrowed to meet commitments. The difference between cash flow profit and total profit will be especially large and especially relevant around turning points in the financial cycle. Because of financial innovations that typically occur in the upswing, *ex ante* payment contracts will be more in the form of cash-like liabilities (such as repos and other near-moneys) that lose their cash-like character in the downturn, when payment is due. In these episodes, the difference between profit and cash flow profit may explain much of the potential for financial stress and instability. Although these and other applications of that distinction clearly need to be more fully developed, one can see how a Money View focus may advance the Minskian analysis.

Minsky's project was different from the cash flow-focussed Money View Project also in another dimension: the economy's financial structure. The structure of assets and liabilities has consequences that include but go beyond cash flows. Cash commitments, for instance, are the result of financial structures: '[t]he existing liability structure of firms determines the cash payments commitments' (Minsky, 1980, p. 513). More generally, cash flows may fall short of cash commitments because of the underlying structure of assets and liabilities that give rise to incoming flows of revenues (some of them are cash revenues) and outgoing flows of payments (some of them are cash payments). Analytically, one can go one step back from cash flows to the financial structures that cause them, and Minsky took that step.

Moreover, just as the prospect of profit, not just cash flow, motivates investment and borrowing decisions and, therefore, helps to explain observed behaviour, so the entire structure of assets and liabilities matters, not just those that give rise to cash flow revenues and outlays. In the Great Recession following 2008, American households that were deeper in debt cut back consumption more than others (Mian *et al.*, 2013), and banks that had more mortgages on their balance sheets cut back lending more than others (Zhang *et al.*, 2017). Their cash flows may not have been much different from other units' cash flows, but the structure of their assets and liabilities was. Negative equity and debt overhang observably change behaviour. Conversely, rising asset values stimulate borrowing and spending (both consumption and investment), especially with

mark-to-market accounting and with assets that serve as collateral for borrowing. To analyse this, the survival constraint and cash flows are not enough; financial structure must come into play. It is the stocks, not only the flows that matter to behaviour. This is a dimension of Minsky's thought that includes but goes beyond the Money View framework that informs Neilson's book.

2.3 *The two poles in Minsky's work*

Another topic that remains undiscussed is Minsky's concern with employment. His unique contribution in this area was the proposal to let the government provide a permanent pool of jobs that expands and contracts with the business cycle, modelled on the 1930s US Works Progress Administration (WPA; others have promoted this as the 'Employer of Last Resort (ELR)' or 'Job Guarantee' idea). It is in chapter 13 in his 1986 book, and Minsky wrote about this already in his published and unpublished work in the 1960s and 1970s (see the posthumously published [Minsky, 2013B](#)). Strangely, the WPA (or ELR) idea is not mentioned at all in Neilson's book. And yet full employment to Minsky was not a side issue to his analysis of financial structures but a central concern. His proposal is part of a larger vision of public institutions as market makers—central banks in money markets and governments in labour markets. When no one wants to buy bonds or labour, the public sector will. This is the principle, Minsky argues, that stabilises an unstable economy, in labour markets as much as in financial markets. Bellofiore (2014) suggests another logic: socialisation of employment should be accompanied by socialisation of investment, in order to rectify the profit-driven instability of capitalism, leading to welfare without jobs and investment without capacity creation.

These concerns seem a long way removed from the survival constraint, and perhaps that is why they are omitted. Neilson (p. 46) notes that Minsky borrowed the term 'survival constraint' from his teacher Henry Simon, but never used it after his dissertation work 'because he buil[t] the idea more deeply into his thinking, not because he g[a]ve it up' (p. 46). But perhaps it *is* significant that the survival constraint was not mentioned again, and maybe Mehrling's and Neilson's Minsky is more financially focussed than was Minsky himself. Neilson also, intriguingly, notes that there is no evidence that Minsky was aware of Morris [Copeland's \(1948\)](#) work on 'money flows', a forerunner of the Flow of Funds framework. This is puzzling—could a project like this have completely escaped Minsky's attention? Or is his lack of mention perhaps better explained by the strictly financial nature of Copeland's framework (although Copeland's chapter 12 is about 'money flows and business fluctuations')? Perhaps this was not what Minsky sought to develop and, therefore, to mention or discuss in his writings. This is guesswork; historians of economic thought will hopefully shed light on this issue.

In any case, an alternative reading of Minsky is that the settlement constraint, liquidity and cash flow, which take absolute precedence within the financial logic of the Money View, constituted one pole of Minsky's conceptual framework. The other pole, I suggest, was about debt, asset prices, capital investment, jobs, income and inequality—those variables that describe the interface where the financial logic interacts with and shapes macroeconomic outcomes. His two-price theory of investment was, after all, about two prices—one real and one financial. His dissertation title ended with '... and the Functioning of the Economy'. In the last part of his 1975 book, he worried

about a ‘combination of investment that leads to no, or a minimal, net increment to useful capital, perennial war preparations, and consumption fads has succeeded in maintaining employment’ (Minsky 1975, p. 164), and in his 1986 book, he wrote about stabilising an unstable economy, not stabilising an unstable financial system. He advocated effectively a socialisation of investment (Bellofiore, 2014). Certainly, Minsky held that ‘everyone is a bank’. But ultimately, Minsky was concerned with the macroeconomic outcomes of financial dynamics, outcomes that are curiously absent in Neilson’s book. For example, Minsky’s (following Keynes’) distinction between speculation and investment (noted by Neilson, p. 137) is relevant precisely because investment makes profits and jobs possible, while speculation on capital gains is a zero-sum game for those directly involved and a negative-sum game for the wider economic system—it is the ‘enemy of enterprise’ (Minsky, 1987, quoted by Neilson, p. 137).

This brings us to the book’s treatment of the reception of Minsky or the ‘retellers of Minsky’s story’ (p. 124–125). Neilson briefly discusses three and categorises them as analysing asset prices (Auerback *et al.*, 2010), behavioural regularities (Lavoie, 2006) and refinance (Mehrling, 2010). Elsewhere (pp. 130–131), he discusses Minsky interpreters such as Dow (2010), Keen (2011) and Wray (2015), criticising them for their emphasis on risk perception and risk premium, rather than on uncertainty. This is a somewhat meagre acknowledgement of work inspired by Minsky other than the Money View centred on the survival constraint. In particular, Wray has extensively championed Minsky (Papadimitriou and Wray, 2010, Wray, 2015), with a focus on other Minskian concerns—the employer of last resort idea (Wray, 2011), and the implications for understanding the economy’s (real) capital development (Mazzucato and Wray, 2015). This strand of Minsky’s interpretations is true to the same Minsky, who undertook a large study on poverty and who devoted so much time to thinking out and promoting his government jobs proposal.

These different perspectives on Minsky, to my mind, are evidence that Minsky was indeed a great economist, up there with Keynes, Schumpeter, Sraffa, Marx and Smith. Numerous books have appeared and will continue to appear explaining ‘what Keynes *really* meant’, since lesser economists need one lens and have trouble handling the several lenses used by a great economist. Keynes famously changed his mind when he learned new facts. Minsky, the self-declared follower of Keynes, had an exceptionally long career and, therefore, ample exposure to new facts and a keen interest in new facts. He was always weighing them against the two poles in his thinking, always modifying his relative emphasis on either, always developing his views.

To find out what the Money View Minsky thought, why he thought it and how he came to develop these ideas, I know of no better book than Neilson’s. Minsky, who could be wordy and lost in details for pages on end, never achieved this concise presentation of key ideas. This is a remarkable achievement.

3. Ferri and the Model Minsky

Piero Ferri’s latest book *Minsky’s Moment: An Insider’s View on the Economics of Hyman Minsky* gives us a ‘Model Minsky’ rather than a ‘Money View Minsky’. Ferri, Professor Emeritus at the University of Bergamo in Italy, was one of the Minsky’s long-standing collaborators. He is a specialist in dynamic system models with an interest in labour markets, who wrote his dissertation in Oxford under Hicks. Ferri and Minsky met at

a 1978 seminar, an event that Ferri modestly refers to as 'a felix astral conjunction' (p. 41; from now on page numbers refer to [Ferri, 2019](#)). From then until his death in 1996, Minsky spent part of every summer working with Ferri in Bergamo. Just as Neilson left out the Model Minsky (and the real-sector Minsky) in order to focus on the Money View Minsky, so Ferri is silent on the financial market details that, Minsky believed, are at the heart of how the FIH will manifest itself in historical time. None of these found their way into the highly stylised models that Ferri constructed, with Minsky's blessing.

In this reviewer's assessment, there is a tight connection between method and content in these omissions; they are not just choices of emphasis, which could have been made differently. The institutional analysis of financial markets by Neilson and the Money View rules out an analytically rigorous link to macroeconomics. The modelling approach favoured by Ferri cannot, by its nature, accommodate financial details.⁷ Neither book captures 'the' economics of Hyman Minsky; both give a view on his economics, as Ferri's book title states, and it is a partial view. In this sense, the two books can be viewed as great complements. An alternative assessment⁸ is that both books miss the quintessential contribution of Minsky's 'financial theory of investment', which was to build out 'financial Keynesianism', to connect finance with macroeconomics. Yet another alternative view is to acknowledge Minsky's methodological eclecticism, not as a matter of convenience, but as a matter of principle.⁹ Methodological eclecticism fits in with his evolutionary, institutional approach to doing economics, in which he followed Keynes. In this approach—best characterised as 'Post-Keynesian Financial Institutionalism', paraphrasing [Whalen \(2019\)](#)—the study of social reality is amenable to formal modelling, but this is not juxtaposed to non-formal (historical, institutional and logical) analysis. If social reality is historical and complex, no single methodology can be claimed as the exclusive or superior approach to the study of financial capitalism—whether it be Neilson/Mehrling's balance sheet reasoning, or Kalecki's macro-accounting structure, or Ferri's dynamic systems or [Minsky's \(1975\)](#) own 'toy' models and (1986) descriptive studies. To this referee's knowledge, Minsky never explicitly advocates methodological eclecticism, but he practised it. In this light, it is unsurprising that different strands of Minsky-inspired work should use radically different methodologies. Minsky himself did.

3.1 *Joint work*

In Ferri's work with Minsky, their joint project was to formalise the FIH. This reflects Minsky's enduring quest for a model representation of his ideas, a search that started with his study of multiplier-accelerator models in the 1950s. The reason for this is clearly put in one of his articles co-authored with Ferri. After concisely characterising financial capitalism under uncertainty, [Ferri and Minsky \(1992\)](#) note that '[t]he mathematics of such systems leads to the proposition that capitalist economies should, from time to time, exhibit economic instability. However, instability rarely becomes explosive. We need to understand why' (quoted in [Ferri, 2019](#), p. 82). Rather than

⁷ See also [Vercelli \(2019\)](#). In personal communication, Piero Ferri disagrees with this view.

⁸ I thank Riccardo Bellofiore for emphasising this interpretation. An example of combining these two perspectives is [Burlamaqui and Kregel \(2005\)](#).

⁹ I thank an anonymous referee for suggesting this point.

juxtaposing formal and institutional analysis, their formal models led Ferri and Minsky to investigate what the stabilising institutions of financial capitalism are. Their approach was truly evolutionary in that no omniscient and benevolent state is assumed, which designed these institutions or even understands that the system is unstable. Instead, the evolutionary understanding of [Ferri and Minsky \(1992\)](#) is that '[t]rial and error led to the structure of interventions and institutions that survived' (quoted in [Ferri, 2019](#), p. 91).

The first part of the book previews its content and puts it in the context of Ferri's collaboration with Minsky. In its second part, three of the articles co-authored by Ferri and Minsky are reprinted, 'not so much to show the fruitfulness of [our] collaboration as to use them as a vehicle to get to the core of Minsky's contributions' (p. 9). In *Prices, Employment and Profit* (1984), they address the stagflation puzzle. On their first meeting in 1978, Ferri had given Minsky a draft paper on the wage share. When he visited Minsky later that year in Rome, Minsky had 'totally ravaged' the paper. 'Corrections were everywhere, including on the backs of pages'. The paper published six years later (with Minsky as the first author) 'was totally different from my initial project... it tried to link the dynamic analysis contained in "Can "It" happen again?" (1982) with the Kaleckian theory of profits...' (p. 42).

In the paper, Minsky and Ferri first outline the institutional features that underpin their model: firms and unions with market power, fragile financial markets, big government and an interventionist central bank. The first two of three key equations stipulate that prices depend on wages and vice versa, with market power determining the mark-up on wages. Kalecki's profit equation is the third feature at the heart of the model. It implies the macroeconomic relation that prices must equal wages plus a mark-up that is determined by the structure of aggregate demand, expressed in the households', firms' and the government's sectoral balances. Market processes and macroeconomic constraints interact to produce the path of prices and wages. In a graphical analysis, Minsky and Ferri illustrate that with rising prices and profit constrained by the structure of aggregate demand, unemployment will rise. Conversely, more employment goes hand in hand with more inflation if aggregate profit constraints are relaxed—by the fiscal posture, by household savings decisions or by monetary policy ('although the effects [of the latter, DJB] may be remote', p. 57). The general conclusion is that the market processes with often explosive behaviour are typically overridden by institutional 'floors and ceilings' such as 'automatic [fiscal] stabilizers, customary usages, and policy maneuvers' (p. 60).

This paper does offer a story about stagflation, but, in doing so, it shows the limitations of highly stylised, top-down modelling. It is hard to see how the equations necessarily lead to the graphical analysis, how the graphical analysis goes beyond (highly plausible) storytelling and how exactly the institutional features in the introduction matter in the analysis. Elsewhere in the book, Ferri is at pains to deny the myth that Minsky avoided formalisation (p. 45). But he also admits that the reason Minsky did not 'push the process of formalization to a deeper level has to do more with the [institutionally rich, political—DJB] nature of his theory than with his lack of capability' (p. 212). Minsky's hesitation is understandable when one sees the very limited insight into the financial fragility process or the political economy that governs the structure of aggregate demand, which can be generated from the formalisation in [Minsky and Ferri \(1984\)](#).

The second and third reprinted articles are verbal. Ferri and Minsky's (1989) 'The breakdown of the IS-LM synthesis: implications for post-Keynesian theory' was published in the inaugural issue of *Review of Political Economy*. It reflects on the then two decades of post-Keynesian history, in which mainstream Keynesianism reverted to pre-Keynesian economics. IS-LM (Investment-Saving/Liquidity-Money) synthesis, augmented with a Phillips curve, had spawned econometric forecasting models 'reducing Keynes to banality' (p. 66). When these forecasts failed, the IS-LM consensus was 'routed' in the 1980s and replaced by the emerging New-Keynesian school, of which Ferri and Minsky (p. 68) remark:

The new Keynesians are advancing proposition that have been part of the post-Keynesian canon through the years. The question is whether this "coincidence of maintained propositions" reflects some deeper agreement of what Schumpeter called "vision", or whether it reflects the "power" of technically able economists to force results that are consistent with the priors they hold as to how the world behaves

The answers to those two questions were no and yes. New-Keynesian economics, only marginally different from new classical macroeconomics,¹⁰ had neutered Keynesianism into the statement that 'all would be well if only labour behaved properly' (p. 63). Against this, Ferri and Minsky focus on the role of money and finance in the movement of money wages. They define post-Keynesian economics by its emphasis on expectations, asset prices and institutions. In conclusion, they leave the door wide open to new Keynesianism, hoping for a convergence on true Keynesian principles (see below).

'Market Processes and Thwarting Systems' (1992) was the last paper Ferri and Minsky co-authored and for Ferri 'the pinnacle of our collaboration'. He includes it because it is 'fairly up to date... It reads as if though it was written after the Great Recession and not almost 20 years before' (p. 46). Ferri and Minsky juxtapose the equilibrium-with-shocks view of business cycles to their own endogenous view, which makes explosive behaviour a possible state of the world. Stability, however, is the norm because of 'thwarting systems', specifically labour market institutions, market power, financial structures and lender-of-last resort intervention. This view, they note 'is consistent with history: laissez-faire capitalist economies were failures almost everywhere in the 1930s, whereas the post-World War II capitalist economies that have been successful are government interventionist economies' (p. 91).

This indeed shows not only the success but also the temporal limitation of their approach: their theory fits a very specific slice of post-war history as opposed to pre-war history. Yet, as noted, Ferri asserts the enduring relevance of the three articles (published in 1984, 1989 and 1992). This requires more argumentation. Labour unions are now largely gone. The market power of 'Big Tech' due to financial innovations is beyond what could be imagined in 1992. Central banks act not just as last resort lender, but also as market makers in the repo markets (due to shadow banking) and in the bond markets (due to quantitative easing). In these new conditions, how do thwarting systems operate today, if they do?

Also methodologically, the book does read dated in places—not only when Ferri (p. 125) writes about 1997 debates as 'recent' but also more fundamentally by omitting

¹⁰ With some exceptions, such as work by Stiglitz, see Caiani *et al.* (2016) and Delli Gatti *et al.* (2018).

serious discussion of current approaches in the evolutionary study of complex systems, notably simulation of agent-based models. Ferri notes that this technique may overcome the micro–macro tensions in Minsky’s work (p. 8). But, only the agent-based labour market model by Delli Gatti *et al.* (2015) is briefly discussed (pp. 167–169), and then replicated in one of Ferri’s familiar top–down models. More generally, Ferri discusses only a very few of the many models inspired by Minsky—models on the same topic and inspired by the same ideas, which could have put Ferri’s efforts in a contemporary context. [Nikolaïdi and Stockhammer \(2017\)](#) provide an overview of this literature.

3.2 *Minsky and methodology*

Ferri then takes up methodological questions: the relation between micro and macro, the foundations for medium-run analysis and the use of new tools such as regime-switching models. Since from here on the book is about Ferri’s research, it is fair to ask to what extent it reflects Minsky’s work. Ferri addresses this question as he conscientiously notes the risk that ‘I might exploit Minsky in order to talk about myself. On the other hand, Minsky may have dropped topics that he knew were outside my scientific agenda, which he knew was centered on macroeconomics and on the working of the labour market, but did not include finance’ (p. 40). I suspect Minsky would not have cared much—he thought it ‘more important for an economic theory to be relevant for an understanding of economies than for it to be true to the thought of Keynes, Sraffa, Ricardo or Marx’ ([Minsky, 1990](#)). He himself had exploited Keynes in just this way to talk about the two-price theory of investment.

Ferri defends his models without financial detail by noting that Minsky had included many non-financial sector papers in his 1982 book, and (more importantly) that all the models they built together ‘refer to a monetary economy of production, to use Keynes’ terminology’—by which he means that wages, revenues, debt and other financial stocks and flows are explicitly modelled. Ferri claims for his book that ‘the overall results may be the building of a prism reflecting Minsky’s deepest ideas’ (p. 40). Specifically, I suggest, Ferri’s book is the best viewed as his attempt to continue building on Minsky’s dissertation work on accelerator-multiplier models, regularly cited by Ferri (e.g. pp. 101, 206).

In part III, Ferri discusses Minsky’s project in ‘high theory’. In their 1989 article, they had written about a ‘new view – often called a new Keynesian economics which is making its presence felt in mainstream economics’ (p. 77). Hopefully, they had written:

These new Keynesian economists have only peripherally focused upon the financing structures of capitalist economies. As they extend their vision to include the role of imperfect and asymmetric information ..., a convergence between these new Keynesian economists and a technically proficient generation of Post-Keynesian [sic] will take place.

(Amusingly, this betrays the modeler’s mild exasperation at the implied technical backwardness of current Post-Keynesians). Writing 30 years later in 2019, Ferri (p. 95) now admits that this hope was overly optimistic. The promising new Keynesians of old have become the new Keynesians. They have indeed taken over mainstream economics, but the rapprochement with the post-Keynesians was not to be. Ferri (pp. 96–97) reflects on their differences. The new-Keynesian project has been to build microfoundations for neoclassical economics with what they considered Keynesian twists: sticky prices, asymmetric information and other ‘imperfections’. In contrast, Minsky’s project, as

Ferri (p 99) claims, was to provide macrofinancial foundations for microeconomics. This is not only an important but also contestable claim.

3.3 Minsky and aggregation

The relation between microeconomic and macroeconomic analysis is the heart—and for some, the stumbling block—of the FIH. Whereas Neilson's 'Money View Minsky' is concerned with the microeconomic financial relations (including those involving the central bank), Ferri's 'Modelling Minsky' is all about aggregate variables. Both leave important questions on aggregation in the FIH open to debate.

Minsky's early expression of the FIH is in the context of the (1975) two-price theory of investment, especially the graphical analysis in diagram 5.4 in *John Maynard Keynes*. It is entirely in microeconomic terms. There is no specification of the link between the behaviour of the firm and macroeconomics. Rather, as Lavoie and Seccareccia (2001, p. 83) argue, it might entail a fallacy of composition, which undermines Minsky's claim that firms' debt/equity ratios will rise in a boom, signifying financial fragility. According to Kalecki (and all else equal), rising debt which is financing rising investment would lead to rising profit (and equity) in aggregate. This can validate the debt. It would not lead to financial instability. The business-debt-to-equity ratio that is central in Minsky's (1975) exposition as an indicator of financial fragility (the tendency to instability) in aggregate need not rise in a boom with rising debt, Lavoie and Seccareccia (2001, p. 83) argue. This matters since 'the rest of his financial fragility hypothesis follows from this questionable presupposition' [that debt/equity ratios rise in a boom, DJB]. In the conclusion, they reassert that 'his hypothesis hinges on a key assumption that succumbs to the fallacy of composition' (Lavoie and Seccareccia, 2001, p. 93). They go on to show empirically with Canadian data that debt/equity ratios do not generally rise in a boom. In later work, Lavoie (2017) reports model experiments showing that debt/equity ratios may rise or fall during a boom depending on a range of plausible variations in assumptions. The tight link between financial fragility and rising debt/equity ratios that Minsky (1975) posited cannot be maintained—or it is we do, it must be concluded that financial fragility does not rise in a boom.

So did Minsky pose isomorphism between micro and macro and commit a fallacy of composition when he presented a microeconomic diagram as an explanation of macroeconomic financial instability? His repeated use in *John Maynard Keynes* of the term 'representative' firm suggests as much. Also, Toporowski (2008, p. 735) argues that in Minsky's logic, 'it is the net indebtedness of individual firms and not the gross indebtedness of the company sector as a whole that is the crucial indicator of financial fragility'. Minsky treated 'investment as financing itself by creating equivalent profits' (Toporowski, 2008, p. 735)—but this is only valid for those individual firms that would be able to capture somehow the revenues from their own investment. Making this assumption for the whole economy amounts to using a 'representative firm', clearly a 'fallacy of composition' (Toporowski, 2008, p. 734).

Ferri notes the objection raised by Lavoie and Seccareccia (2001) and adds to it (p. 100) that '[t]here is no doubt that when he wrote *John Maynard Keynes* the Kaleckian theory of profits was not among his tools of analysis'. This is odd but, apparently, true. Minsky was in Cambridge (UK) in 1969–70, where Kalecki had a great following and where earlier that same year Kalecki's 70th birthday had been celebrated with a prestigious University Lecture by Kalecki himself, no doubt attended

by many with whom Minsky interacted. In spite of this, according to [King \(1995, p. 16\)](#) (quoted in [Lavoie \(1999, p. 79\)](#), the first reference to Kalecki's macroeconomic equations appeared in Minsky's work in 1977. However, already in the early 1970s, Minsky was thinking in the spirit if not the letter of Kalecki's profit equation, as [Lavoie and Seccareccia \(2001, p. 82\)](#) note. They quote Minsky's recognition in *John Maynard Keynes* that 'aggregate investment, by affecting income, affects the aggregate [corporate internal funds]' ([Minsky, 1975, p. 107](#)). Yet Minsky did not quote or explicitly use Kalecki's profit equation.

This begs the question how Minsky viewed the relation between micro and macro in the 1975 book if not in Kaleckian terms. Ferri's solution is that in Diagram 5.4, [Minsky \(1975\)](#) shows the investor's behaviour in a system tending to financial instability or the 'macro-founded behavior of an agent in a complex financial world' (p. 100). Minsky did not claim that macro outcomes are implied by microanalysis (which would be a fallacy of composition), but he showed micro behaviour assuming a macro environment, which is Ferri's view. This macro environment is what Ferri and Minsky would later attempt to capture in their models.

For Ferri, the realisation of financial instability does not hinge on aggregation problems, but on 'parameter values' in the aggregate models and on the possibilities for financial instability to be 'thwarted by a complex set of forces' (p. 100). That may be true for Ferri in 2019, and for Minsky and Ferri in 1992. But it is rather a circumspect statement of Minsky's position in the early 1970s when he was spelling out his two-price theory of investment. Ferri's position may be truer to the late Minsky who worked with Ferri, than to that younger Minsky. But [Lavoie and Seccareccia \(2001\)](#)'s objection was raised against the 1975 theory, before the thwarting forces of Ferri and Minsky's models in later years. It appears anachronistic to attribute these to Minsky's interpretation of Diagram 5.4 in *John Maynard Keynes*.

Meanwhile, the fallacy-of-composition criticisms by [Lavoie and Seccareccia \(2001\)](#) and by [Toporowski \(2008\)](#) leave the impression that Kalecki's profit equation, which asserts that rising debt-financed investment induces the profit flows that validate debt by building up equity, undermines the FIH—a conclusion that [Lavoie and Seccareccia \(2001\)](#) explicitly draw from their analysis, as we saw. It is not clear that this strong conclusion is warranted even if the criticism is accepted. Their analysis is focussed entirely on the boom phase, following [Minsky's \(1975\)](#) own focus. But financial fragility is vulnerability; it is, therefore, a conditional state. It is damage to balance sheets in the event of a disruption. The fragility builds up in the boom, and it becomes apparent as financial instability after the boom, in the event of a disruption. Kalecki's profit equation, far from undermining this hypothesised sequence, endorses it. If, per Kalecki, the validation of liability structures depends on the incomes generated from investment financed with those liabilities, then a disruption that breaks this causal chain will endanger the validation of liability structures. Minsky's assertion that aggregate debt/equity ratios must rise in a boom is incorrect, as [Lavoie and Seccareccia \(2001\)](#) and [Lavoie \(2017\)](#) convincingly show, and as Toporowski coherently argues. Minsky was wrong about this particular manifestation of financial fragility in a boom. But it is easy to think of other symptoms of financial fragility (for instance, the distribution of financing profiles over firms as in [Domenico Delli Gatti, 2012](#)). If [Minsky \(1975\)](#) committed a fallacy of composition (Ferri does not agree he did), then this affects the implication in that particular model that debt/equity ratios must rise in a boom. It does not disprove the FIH itself.

A model is not a theory; Minsky's (1975) diagrammatic exposition is not the FIH. It is one of the early ways in which he modelled the FIH, and Lavoie and Seccareccia (2001) clarified that there was a flaw in the modelling. The FIH is more than this. It is the assertion that 'over a protracted period of good times, capitalist economies tend to move from a financial structure dominated by hedge finance units to a structure in which there is large weight to units engaged in speculative and Ponzi finance' (Minsky, 1992, p. 8). This is only one way in which the FIH has been stated by Minsky. Even in this short paper (Minsky, 1992), he restates the FIH several times in different ways. Other model translations of the FIH than Minsky (1975) are possible, as the Nikolaidi and Stockhammer (2017) survey amply demonstrates. Most do not strictly imply rising debt/equity ratios in a boom. To reject the FIH because debt/equity ratios do not necessarily rise in a boom is, therefore, unwarranted. And despite the wording in Lavoie and Seccareccia (2001, pp. 83, 93), apparently, their rejection concerns the implications of the 1975 model of the FIH not the FIH itself. In later writings, they endorse the FIH (e.g. Lavoie, 2014).

This defense of the FIH highlights a weakness of the FIH, at least if viewed in a Popperian way. Can the theory ever be pinned down in a model that is amenable to logical and empirical testing? The answer is clearly no. The FIH, because it can be operationalised in many different ways, can never be comprehensively tested. (The question is of course why, in social science, this should be desirable to start with.) The FIH will continue to give rise to interpretations of the evolution of capitalism that are amenable to logical and empirical scrutiny. The FIH is fruitful rather than correct or incorrect. Criticising and rejecting the Minsky (1975) modelling of the FIH are a helpful way to further Minsky's wider project.¹¹

3.4 Minsky and agent heterogeneity

Another answer is also possible to the criticism that Minsky used a representative agent model, committing a fallacy of composition. It is not an answer that Minsky gave in *John Maynard Keynes*. That an aggregate rise in debt leads to rising aggregate investment and profit, enough to repay the debt is all good and well; what matters is the question of whether the profit flows to the balance sheets on which the debt was issued. And there is no guarantee. Rising aggregate debt with rising aggregate profit and equity is bound to lead to more balance sheet mismatches between debt growth and profit flows—precisely the kinds of mismatches that underpin the FIH. Heterogeneity of individual firms means that macro and micro results are not identical. Even in a Kaleckian world of rising debt inducing rising profit and equity in aggregate, there are many possible distributions of profit flows imaginable that cause financial disturbances, and special assumptions would be needed to rule this out.¹² This answer was never explicitly given by Minsky. He never stipulated how the distribution of cash flow revenues matters to debt repayment and the emergence or absence of financial instability. But it is an analysis that builds on Minsky's work, best done in an agent-based model with heterogeneous agents.¹³

¹¹ A similar helpful criticism is the rejection of Minsky's idea that the interest rate must rise in a boom, which appears grounded in loanable-funds assumptions in early formulations of the FIH (Lavoie, 1999).

¹² Caverzasi (2013) analyzes the additional assumptions needed to prevent financial instability.

¹³ Domenico Delli Gatti (2012) outlines this approach. He also notes that '[i]n my opinion the role of heterogeneous financial conditions is the specific piece of Minsky's intellectual heritage that has been so far underresearched'.

Ferri may refer to something very similar when he writes that ‘a world where the Kaleckian mechanism is the only one at work ... is not Minsky’s world’ (p. 100). In the above example, the Kaleckian mechanism needs to be augmented by a description of the distributive dynamics of cash flows. For Ferri, those additional dynamics have their impacts via macroeconomic variables such as interest rates and aggregate debt and investment, not cash flows. Tensions in the financial market ‘will have an impact upon the rate of interest and therefore on the dynamics of debt and investment’ (p. 100). If debt growth systematically leads to tension that undermines the validation process—by changing the ‘dynamics of debt and investment’, as Ferri puts it—financial fragility will grow.

However, in a proper theory, these ‘dynamics’ need to be spelled out, and this is not done in the models Ferri presents. I suggest that this is because the distribution of cash flows, and the development of that distribution, cannot be represented in Ferri’s macro-models.

3.5 *Models after Minsky*

In parts IV and V of the book, Ferri builds new models. Chapters 11 and 12 reconcile the growth of supply with the growth rate warranted by autonomous demand. This produces a non-linear model with regular, bounded fluctuations. It is the introduction of constraints—physical or institutional, e.g. through prices as in chapter 12—that makes the cycle irregular (pp. 147, 157). Chapter 13 models the labour market, and chapter 14 is a model of emulation-driven consumption as an explanation of the 2008 US Credit Crisis, building on work by Fazzari and Cynamon (2016). In this model, the debt growth is all driven by consumption and not by housing, an inconsistency in the common US household debt narrative also pointed out by Mason (2018). A key result is that with an endogenous evolution of the income distribution, more emulation makes the economy less stable. The next and semi-final chapter presents the most general of all the financial instability models in the book. It is motivated by Minsky’s (1992) two preconditions for having financial instability at all: the economy must have two financing regimes, one stable and one unstable; it must have a tendency to transition to the unstable regime. Accordingly, Ferri presents a regime-switching model, where there are two regimes for growth of autonomous demand and for the sensitivity of the change in investment to cash flow (the degree to which firms are liquidity constrained). This model produces large fluctuations, which are bounded in the good regime but unbounded and explosive in the bad (low growth and high debt) regime. It does so over a large range of parameter values so that the findings are robust. The final chapter posits the FIH as the one way to overcome the ‘dichotomy between hydraulic Keynesianism and the so-called DSGE models, into which macroeconomics is divided’ (p. 218).

4. Conclusions

These two books, then, present two different Minskys: a Money View Minsky and a Model Minsky. Schools of Minskian analysis are now developing, which build on each of these views. My argument in this analytical review has been that the micro-financial and macroeconomic strands are different but consistent; there is no fallacy of composition in the financial fragility hypothesis. The diversity of interpretations and methods

also reflects the evolutionary nature of the FIH, which is not a model but a theory. In keeping with this, Minsky was a scholar who embraced methodological eclecticism himself, as the following anecdote illustrates. In August 1988, Ferri and Minsky worked out a grand project to write a book; Ferri even gives the contents page (p. 45). The book was never finished. Ferri: 'Minsky's priority was more to work on the frontier of finance than to systematize his knowledge' (p. 45). One summer after another in Bergamo, Minsky collaborated with Ferri to formally model his ideas. At the same time, he was convinced that the institutional details of finance, which would never make it into the models, are at the heart of financial capitalism's dynamics.

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