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The theory of monetary disorder: debt finance, existing assets, and the consequences of prolonged ultra-easy policy

THOMAS PALLEY*

Abstract:

This paper introduces the notion of monetary disorder. The underlying theory rests on a twin circuits view of the macro economy. The idea of monetary disorder has relevance for understanding the experience and consequences of the recent decade-long period of monetized large budget deficits and ultra-easy monetary policy. Current policy rests on Keynesian logic whereby a large fall in aggregate demand warrants robust offsetting monetary and fiscal policy actions. That logic neglects potential monetary disorder being bred within the financial circuit in the form of inflated asset prices and leveraged balance sheets. That disorder is likely to develop long before inflation accelerates so that inflation targeting fails to protect against it. Political factors increase the policy danger as the benefits of disorder are front-loaded and the costs backloaded. The paper concludes with a policy discussion regarding how to prevent Keynesian goods market counter-cyclical stabilization policy from causing monetary disorder.

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1. Introduction: monetary disorder versus monetarism

This paper introduces the notion of monetary disorder which is developed within the context of a twin circuits model of the economy. Like the traditional monetarist Fisher equation of exchange, the paper emphasizes the circulatory nature of money. However, unlike the monetarist approach there is no necessity that large exogenous injections of money trigger product market inflation. Instead, such injections may fuel monetary disorder via asset markets and trigger asset price inflation. A key analytic distinction is between new and existing capital assets.

The approach has significant policy relevance. Over the past fifteen years, macroeconomic circumstances have encouraged ultra-low interest rates and massive issuance of bank reserves, and those circumstances may return. Governments ran large budget deficits which

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were financed by central banks ‘printing’ money and buying up the new debt issued. Additionally, central banks engaged in large scale money-financed purchases of existing debt via quantitative easing (QE), and they also facilitated the creation of commercial bank money (i.e., bank deposits) via ultra-low negative real interest rates that encouraged expansion of bank lending. The theory of monetary disorder provides a frame for thinking about such policies and why they may ultimately backfire.

The consequences of monetary disorder depend on economic context. The size of the domestic financial sector is an important variable, with a large financial sector enabling the economy to absorb larger money financed deficits. Inflationary outcomes are more likely in economies with small financial sectors. In such economies, monetary disorder manifests itself via too much demand chasing too few goods and via currency substitution. The latter undermines the exchange rate, thereby triggering import price inflation, conflict inflation, and accelerated currency substitution. In economies with large financial sectors, over-issue of money can lead to asset price bubbles that end in generalized deflation. That illustrates how different the proposed approach is from the classic monetarist perspective as epitomized by the Fisher equation of exchange.

The structure of the paper is as follows. Section 2 presents the twin circuits approach to monetary macroeconomics. Section 3 discusses the construct of disorder. Section 4 presents and explores a taxonomy of monetary disorders, and how the twin circuits model helps understand them. Section 5 discusses the benefit of a large financial sector in damping monetary disorder, while section 6 discusses the relevance of the theory of monetary disorder for the debate regarding modern money theory (MMT). Section 7 discusses policies that can prevent Keynesian goods market counter-cyclical stabilization policy from causing monetary disorder. Section 8 concludes the paper with a discussion of the political proclivity to monetary disorder.

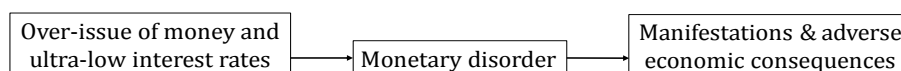
2. The twin circuits: a framework for monetary macroeconomics

The money-inflation nexus remains a significant focus for both classically inclined and Keynesian inclined economists.¹ The theory of monetary disorder suggests that focus is misplaced, particularly in developed economies.

Figure 1 provides a heuristic model of how to think about the problem. Over-issue of money and ultra-low interest rates generate conditions of monetary disorder, which in turn generate adverse economic consequences. The process takes time to work through and is context dependent. Inflation may turn out to be one of the adverse consequences, but it is neither automatic nor direct. Indeed, disorder may end up producing deflation if it results in an implosion of the financial system. That should make clear how different the monetary disorder perspective is from the classical monetarist perspective.

¹ Post Keynesians have emphasized the role of income distribution conflict as the driving force of inflation (see Rowthorn, 1977; Dutt, 1987; Lavoie, 2014, chapter 8; Hein, 2023). However, money still enters the narrative to the extent that it must be endogenously forthcoming to sustain the inflation.

Figure 1 – Schematic representation of the theory of monetary disorder



2.1. The twin circuits

The framework for analyzing monetary disorder rests on the “twin circuits” approach to monetary macroeconomics proposed in Palley (1998a), which in turn derives from Keynes’s (1930) *Treatise on Money*. The economy is represented as having a “real circuit” in which the level of real economic activity is determined, and a “financial circuit” in which financial asset prices and yields are determined.

The twin circuits approach contrasts with the monetarist logic of the Fisher equation which is given by:

$$MV = PY \quad (1)$$

with M = money supply, V = velocity of money, P = price level, Y = real output. The monetarist approach is a single circuit approach, and the circuit concerns the real economy. Money is injected into the real economy. If output is fixed by supply side constraints (the classical monetarist assumption) and velocity of circulation is constant, the price level rises in response to increased M .²

Expressed in terms of rates of growth, denoted by lower case letters, the classical monetarist Fisher equation becomes:

$$m + v = \pi + g \quad (2)$$

m = rate of nominal money supply growth, v = rate of change of velocity, π = inflation, g = growth of real output. If $v = 0$ and g is exogenous, inflation is given by

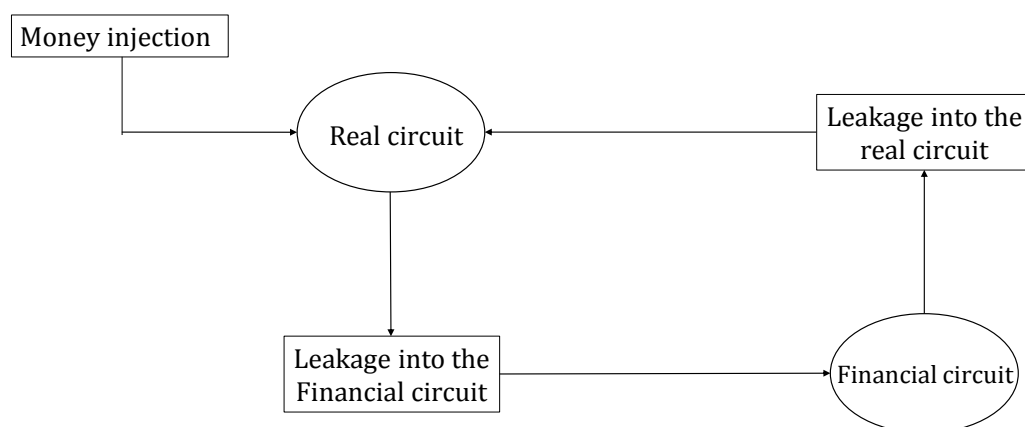
$$\pi = m - g \quad (3)$$

Money supply growth in excess of real output growth therefore shows up directly as inflation, in accordance with the logic of the monetarist perspective.

² The Fisher equation can be thought of as an aggregate nominal demand – nominal supply goods market clearing condition (Palley, 1993). The interpretation of its elements depends on the underlying theoretical macroeconomic perspective. The classical monetarist position is that M and Y are exogenous, while V can be endogenous but is stable in the sense of not being subject to persistent rate of change. The classical neo-Keynesian position is that M , V , and P are exogenous or determined by other equations in the model, while Y is endogenous. Post Keynesians (Palley, 1993) have argued that M is determined according to endogenous credit money theory, which was pioneered by Kaldor (1982) and Moore (1988).

The twin circuits model has a different logic compared to the monetarist perspective, as illustrated in figure 2. Money is injected into the real circuit, some of which leaks into the financial circuit. There is also a leakage from the financial circuit back into the real circuit. Money confers purchasing power to holders of money, and the act of spending transfers that purchasing power and potentially relocates it in another sector of the economy.

Figure 2 – *The twin circuits model*



The nature of the output response to the monetary injection into the real circuit depends on the character of the economy, which depends on current conditions. A depressed economy is characterized by Keynesian conditions in the real circuit, so the initial monetary injection mainly induces increased real economic activity. An economy operating at full employment is characterized by classical conditions, so the monetary injection mainly induces increased prices, stock-outs, and queues. In between those poles, there will be a mix of output and price response, with the mix depending on the elasticity of supply conditions. In an open economy, the output and price response also depends on the conditions of access to foreign supply, and easy availability of foreign supply will tend to diminish both the domestic output response and the accompanying price level response.³

The extent of leakage from the real circuit into the financial circuit depends on income distribution, reflecting a Kaleckian dimension to the twin circuits. Thereafter, money that has leaked out of the real circuit circulates in the financial circuit, impacting asset prices and interest rates. The velocity of circulation in the financial circuit links with Keynes's (1936) liquidity preference theory of money demand and interest rate determination. If liquidity preference is high, the velocity of financial circulation will be low and asset prices will be correspondingly lower and yields higher. The velocity of financial circulation also connects with the phenomenon of asset bubbles, about which more below.

³ The above terse description of the output response to a monetary injection can be elaborated in several ways. First, there is the issue of the source of the monetary injection (e.g., government spending, bank financed consumption spending, bank financed investment spending, etc.). Second, the injection of money triggers induced multiplier effects, including asset price effects working via wealth and collateral values. These channels are familiar to both the neo-Keynesian ISLM model and circuit theory (see Fumagalli and Lucarelli, 2011).

The twin circuits are closed by reflux from the financial circuit back into the real circuit. That happens when agents sell an asset and then spend some of the sale proceeds in product markets. Though not shown in figure 2, banks are critical cogs in this process. Thus, money spent is deposited in banks, then re-spent, and then redeposited. Banks handle transactions within both circuits, and they are also the conduit between the circuits. Metaphorically speaking, banks have their feet in both circuits.

2.2. Budget deficits in the twin circuits

The twin circuits framework helps understand the economic difference between money financed budget deficits and bond financed budget deficits. Figure 2 corresponds to the case of a money financed budget deficit. The central bank provides money to the government which then spends that money in the real circuit. The spending therefore generates an exogenous injection of money into the real circuit. The size of the expenditure multiplier depends on the scale of the leakage into the financial circuit and the reflux back into the real circuit (Palley, 1998a).

Bond financed deficits are more complicated, as shown in figure 3. The government sells bonds and withdraws the bond sale proceeds from the financial circuit. Those proceeds are then spent in the real circuit, generating a money injection into the real circuit. In effect, bond financed deficit spending transfers money out of the financial circuit into the real circuit.

Figure 3 – Bond financed budget deficits in the twin circuits model

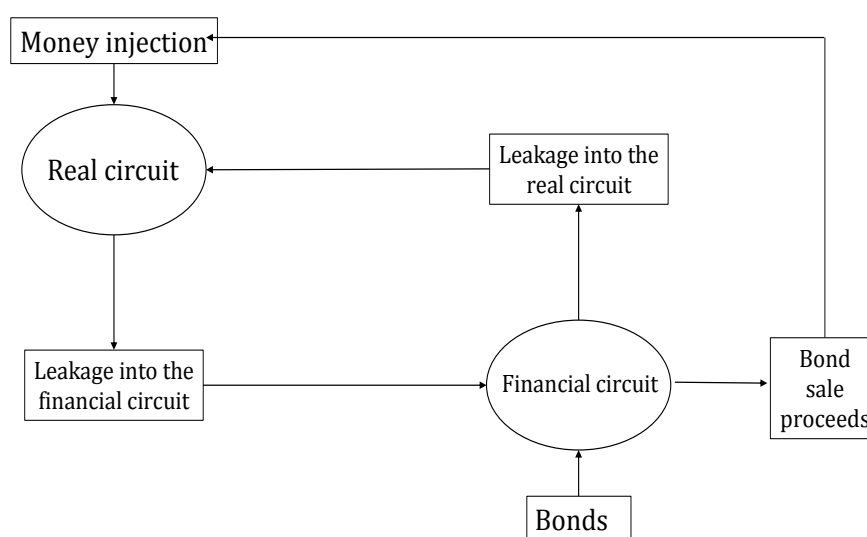
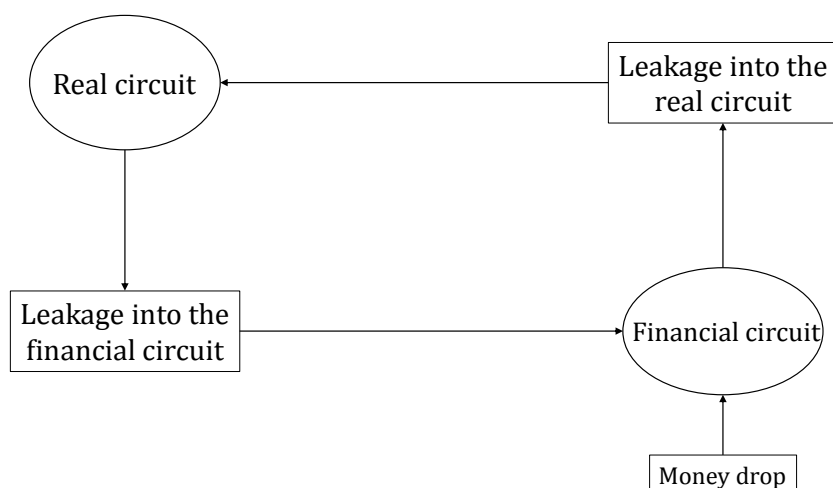


Figure 4 shows the case of a helicopter money drop. Now, money is effectively dropped into the financial circuit, and the real economic impact of the drop depends on the extent to which households spend that money in the real circuit. The economic impact of a helicopter drop therefore depends on what type of households receive the drop. If the drop goes to poorer

households, they will tend to spend it and the impact on the real circuit will be large. If it goes to richer households, they will tend to hoard it and the impact on the real circuit will be small.

Figure 4 – *Helicopter money drop in the twin circuits model*



2.3. Private sector credit and the twin circuits

The twin circuits model also suggests the need to differentiate between types of credit. Credit is supplied by the financial sector. However, it makes a difference whether that credit is injected into the real circuit or the financial circuit. Credit that is injected into the real circuit will directly stimulate aggregate demand (AD) and economic activity. Credit that is injected into the financial circuit will tend to initially bid up existing asset prices. That issue is emphasized by Werner (2012), and it is also identified by Bezemer et al. (2016) who focus on mortgage credit. It is also emphasized by Toporowski (1997) in connection with equity prices. Those differential impacts are lost in macroeconomic models via over-aggregation of credit into a single category. They are also lost via aggregation of demand without reference to how demand is financed and without reference to how credit is created (Palley, 1994, 1997).

2.4. Comparison with ISLM

The twin circuits framework bears comparison with the ISLM framework developed by Hicks (1937). The real circuit has parallels with the IS schedule, while the financial circuit has parallels with the LM schedule. The big analytical difference is that the twin circuits perspective emphasizes the circulating nature of money and expenditure flows instead of supply/demand balance.

The twin circuits framework connects with the analytical tradition represented by the Fisher equation of exchange, to which it adds a second financial circuit equation of exchange.

Each circuit is subject to monetary leakages and injections, and the two circuits are linked with each other. That contrasts with the ISLM model which is a general equilibrium model constructed using market supply and demand analysis. The IS schedule constitutes a flow equilibrium in the goods market, while the LM schedule constitutes a stock equilibrium in the money market. The intersection of the two equilibrium schedules then constitutes a general equilibrium if Walras' law holds (Palley, 1998b).

The two approaches can be viewed as complementary, revealing different aspects of the economy. Metaphorically speaking, the economy is the elephant. The two approaches touch the elephant from different sides. The ISLM provides a static equilibrium picture of the economy. The twin circuits provide a dynamic circulatory picture. Money flows are the oxygen of economic activity and the twin circuits maps the channels of those flows and highlights their implications.

3. Disorder versus disequilibrium: some methodological reflections

One of the difficulties of developing a theory of monetary disorder is that order and disorder are easily conflated with equilibrium and disequilibrium, which is the conventional way of thinking in economics. That conventional mode of thought is encouraged and sustained via the use of mathematical models which require equilibrium conditions for their closure and solution.

The principal benefit of equilibrium analysis is that it provides a simplifying methodology for taming complexity. In effect, it puts history on hold by assuming away the process of internally generated flux that is the engine of history (Palley, 2023, pp. 463-466). Furthermore, mathematical equilibrium analysis can then be paired with mathematical stability analysis to identify factors that might produce instability and make equilibrium untenable.

That principal benefit is also equilibrium analysis' fundamental problem, which is its denial of the historical nature of reality. The construct of disorder is intended to remedy that analytical deficiency by recognizing the evolutionary and fundamentally uncertain nature of history. A disordered situation is not chaotic, it is not a disequilibrium in the sense of markets not clearing, and nor is it characterized by bouncing along either floors or ceilings. It is more akin to a problematic condition. If the disorder is severe, it may ultimately generate developments which produce some form of crisis, thereby triggering intervention and a reset.

It is tempting to identify disorder with instability, but that does not capture its meaning. Disorder involves a different analytical conception of the economic process which is situated within a larger historical process in which events are unfolding. There is no gravitational equilibrium point anchoring the economic process and nor is there an unstable process driving it away from that equilibrium point. Instead, a disordered situation is one which has some undesirable characteristics and developments are unfolding in a way that might eventually require some form of exogenous reset.

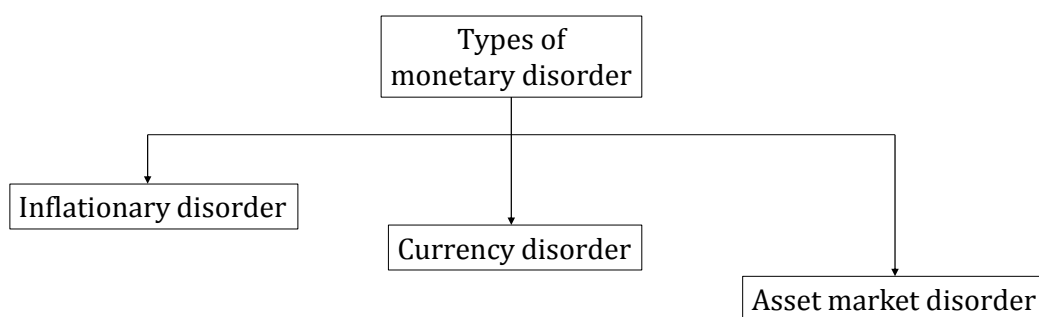
Crisis is the partner of disorder, with crisis being defined as a situation in which the system cannot reproduce itself. Disorder precedes crisis and corresponds to a period of breaking down. Mathematically, it has some parallels with Hopf bifurcation analysis. However, the latter is based on functional representations that represent the breakdown as a precise point, one side of which is stable and the other side of which is unstable. Disorder is better thought of as a problematic zone, and it is a qualitative construct rather than a mathematical one.

Disorder analysis is operationalized by adopting a taxonomic approach that identifies different stylized types of disorder. In what follows, the different forms of monetary disorder are taxonomically classified and then examined by type. Both the order/disorder and equilibrium/disequilibrium characterizations are abstract frameworks for organizing thinking about the economy. Both are symbolic representations, and neither are mirrors that exactly reflect the economy. However, the qualitative taxonomic character of disorder analysis helps resist the fallacy of hyperstatization which equilibrium analysis fosters, whereby economists are tricked into believing the abstract simplification of equilibrium is a true reflection of reality.

4. A taxonomy of monetary disorder

The construct of monetary disorder is useful for thinking of pathological economic situations. Disorder emerges with excessive monetary injections into the system and ultra-low interest rates, prompting ruptures in standard behavioral patterns. Figure 5 provides a taxonomy of disorders consisting of inflationary disorder, currency disorder, and asset market disorder. Those different disorders are explored below, with the main focus being asset market disorder which is relevant for developed economies. An important feature that emerges from the analysis is that the type of disorder is context-dependent and affected by economic structure. Consequently, different economies will have proclivities to different types of monetary disorder.

Figure 5 – *A taxonomy of monetary disorders*



4.1. Inflationary disorder

Inflationary disorder refers to a situation of high or even hyper-inflation in the goods market. Inflation has been the historic focus of economists owing to the dominance of the classical monetarist perspective, as reflected in the Fisher equation of exchange ($MV = PY$).

The simple algebraic logic of the Fisher equation means it is often mechanically asserted to apply in all situations, and that mechanical application is visible in the current moment. Thus, many economists reflexively assert that current large, monetized budget deficits should produce inflation.

Such thinking is misguided as inflations differ and monetary disorder need not produce inflation. The inflation logic of the Fisher equation makes clear sense in two circumstances. The first is when the supply-side of the economy has been devastated by such events as war or paralyzing political disorder. The second is when an economy lacks a developed financial circuit into which excess liquidity can be redirected.

The destruction of the supply-side causes supply (Y) to collapse, creating conditions in which too much monetary spending power is chasing too few goods. With no supply-side relief available, high or even hyper-inflation can develop through the monetarist dynamic identified by Cagan (1956). Anticipating higher future goods prices, agents seek to reduce money holdings by accelerating their goods market purchases and hoarding goods. That causes higher inflation, encouraging further flight from money and creating the possibility of an accelerating inflation feedback loop. In effect, money starts to lose its store of value function.

That said, the root problem is the initial collapse of the supply-side. Though the dynamic ends up being monetarist, the initiating impulse is not, and it is different from the conventional monetarist story which identifies exogenous increases in the money supply as the triggering event.

The second circumstance in which the logic of the Fisher equation holds is when an economy lacks a meaningful financial circuit. Inflationary disorder requires that money remain in the real circuit, in which case flight from money takes the form of flight into goods. However, as discussed more fully below, inflation may not develop if flight from money takes the form of flight out of the real circuit into the financial circuit. In that case, the economy will experience asset price inflation.

That possibility illustrates the usefulness of the twin circuits analytical frame. It also highlights the importance of the financial circuit. High or hyper-inflation is historically associated with supply-side destruction and with economies with a small financial circuit. The size of the financial circuit matters. It provides a form buffer for absorbing monetary disorder and it cannot perform that buffering function if it is small.

4.2. Currency disorder

The second form of monetary disorder in figure 5 is currency disorder, exemplified by dollarization. Currency disorder occurs when economic agents abandon the domestic currency and shift to using a foreign currency. Historically, this phenomenon has been associated with developing and emerging market economies.

The trigger for currency substitution is high domestic inflation, the causes of which can vary. In that context, domestic money begins to lose its capacity to deliver on its functions as store of value, medium of exchange, and stable unit of account. Consequently, economic agents seek out a substitute currency that can perform those functions, and they start to sell domestic currency and buy foreign currency. The substitution can be partial or total. In a partial substitution the domestic currency continues to be used for daily ordinary transactions, but it

is no longer held as a store of value and asset transactions are also conducted in the adopted substitute currency.

The selling of domestic currency and buying of foreign currency depreciates the real exchange rate. That process can then acquire a reinforcing dynamic of its own. First, it may trigger expectations of further depreciation, causing self-fulfilling speculative flight away from domestic currency. Second, it contributes to imported price inflation which then triggers conflict inflation, thereby also exacerbating currency flight. This latter channel tends to be especially strong in developing and emerging market economies. Third, fiscal drag may cause budget deficits which the government finances by printing money, thereby adding a monetarist money supply dimension to the problem.

The important feature about currency disorder is the collapse of the real exchange rate. That collapse is driven by an exit from domestic currency into foreign currency. If the exit were from domestic currency into the financial circuit, the impact would be very different. That does not happen when the financial circuit is small owing to lack of tradeable assets, as is the case in developing and emerging market economies. Once again, that highlights the significance of the financial circuit as a monetary buffer mechanism.

4.3. Asset market disorder

The third form of monetary disorder in figure 5 is asset market disorder, which manifests itself in the form of asset price bubbles, over-leveraged balance sheets, and excess real capital accumulation. This type of disorder is most important for developed industrialized economies such as the US. Asset market disorder works via the financial circuit, which contrasts it with both inflationary disorder and currency disorder. There are also multiple varieties of asset market disorder, which need to be distinguished as they vary in their severity and the damage they inflict.

Figure 6 – Taxonomy of asset market disorders

Asset type	New	Financing	
		Equity, Money balances	Debt
	Existing	A. Keynesian Investment boom	B. Hayek/Minsky
		C. Keynes/ Kindleberger	D. Monetary disorder

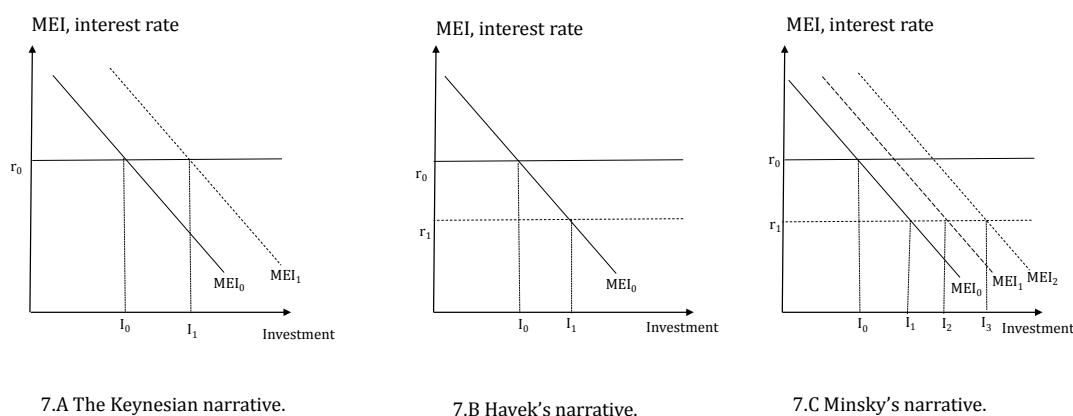
Figure 6 provides a taxonomy of four different asset market characterizations. These characterizations are distinguished by *asset type* and *asset financing*. Regarding asset type, the critical issue is whether the asset is newly produced or an existing asset. Regarding asset financing, the critical question is whether it is debt financed or financed via equity or spending

down money balances. That framing generates a two-by-two matrix with four boxes. It is argued below that it is debt financed outcomes (boxes B and D) that are the most dangerous, and the most dangerous of all are debt financed disorders involving existing assets (box D). The latter resonates with Koo's (2011) theory of balance sheet recessions, showing how Koo's analysis is consistent with a broader theory of monetary disorder.

The focus on asset type matters because of the scale and economic footprint. Speculation in new assets (i.e., investment) concerns the level of flow additions to the existing stock, and therefore has a smaller footprint. Speculation in existing assets (e.g., housing or the stock market) involves transactions regarding the existing assets stock which tends to be large relative to income, and therefore has a large footprint. The type of financing matters because it leaves a balance sheet footprint, with debt financing potentially weakening balance sheets.⁴

Box A corresponds to the conventional Keynesian story about investment booms as told in the simple income – expenditure model. It is illustrated in figure 7.A. The boom is driven by animal spirits, which shifts the marginal efficiency of investment (*MEI*) schedule right. Given the interest rate of r_0 , economic agents increase their spending on additions to the capital stock (which can be industrial capital, commercial structures, or residential structures). That spending is tacitly assumed to be equity-financed. When the boom recedes, if investment spending has been unwise, the economy may be left with an excessive capital stock which can act as a hangover that restrains activity by restraining investment spending.

Figure 7 – *Alternative characterizations of investment booms and monetary disorder*



Box B in figure 6 corresponds to the story of disorder told by Hayek (1932) and Minsky (1975). Hayek's narrative is illustrated in figure 7.B, while Minsky's narrative is illustrated in figure 7.C. According to Hayek, the boom is driven by excessive monetary ease that lowers the interest rate to r_1 , which is below the natural rate of interest. That triggers an investment boom

⁴ The analytic framework in figure 6 resonates with the argument and findings of Bezemer et al. (2016), who report how increased mortgage lending has been associated with lower growth since 1990. Their focus is growth. The focus of the current paper is monetary disorder and its connection to counter-cyclical stabilization policy.

financed by bank credit and it also expands the money supply.⁵ The result is an investment boom and over-accumulation of capital. For Hayek, the boom is monetary in nature and driven by monetary authorities undercutting the natural rate of interest. When the boom ends, the economy is left with two hangovers. One is in the form of excess capital stock, while the other is in the form of balance sheets burdened by bank debt taken on to finance the new investment.⁶

It is that logic which was behind US Treasury Secretary Andrew Mellon's advice to President Hoover that the solution to a slump was to "[l]iquidate labor, liquidate stocks, liquidate farmers [...] it will purge the rottenness out of the system".⁷ It was also echoed by another Austrian school economist, Joseph Schumpeter, who argued against stimulus on grounds that "artificial stimulus leaves part of the work of depressions undone and adds, to an undigested remnant of maladjustment, new maladjustment of its own which has to be liquidated in turn, thus threatening business with another crisis ahead" (Schumpeter, [1951] 2009, p. 117).

Figure 7.C shows Minsky's (1975) narrative of the boom process and its creation of monetary disorder. Now, the boom is spontaneously generated by the emergence of speculative behaviors within the economy, which Minsky captured in his hedge-speculative-Ponzi finance schema (see Palley, 2011a). Growing optimism, spawned by conditions of financial tranquility, affects both sides of the investment market. Lenders become more optimistic and lower the interest rate they require. Side-by-side, entrepreneurs and business managers become more optimistic, which shifts their estimates of the *MEI* right from hedge (MEI_0) to speculative (MEI_1) to Ponzi (MEI_2). As in the Hayek story, the economy is left burdened by a double hangover when the boom recedes. One burden is the excess capital accumulation, the other is the unpayable debt incurred to finance investments undertaken in the speculative and Ponzi stages of the cycle.

The three narratives look superficially similar, but deeper excavation reveals significant differences. The Keynesian narrative is driven by the psychology of animal spirits, which links it with Minsky's narrative. However, Minsky's narrative is psychologically more complex and psychological developments afflict both sides of the investment process. Hayek's narrative blames the monetary authority for unwisely promoting lower interest rates. For Minsky, it is evolving lender psychology that produces lower interest rates. Both Hayek and Minsky emphasize debt hangovers, but the Keynesian narrative does not. That reflects the difference in financing assumptions. All three are united in their focus on investment (i.e., new capital formation).

Box C corresponds to the Keynes's (1936) and Kindleberger's (1978) approach to monetary disorder. This is the classic speculative bubble phenomenon as defined by the

⁵ Hayek (1932) worked with the money multiplier model so that monetary authority policy easing both lowers the interest rate and increases the supply of reserves. The theory of endogenous money has the process working principally via bank lending, with increased loans creating bank deposits and banks finding the needed reserves after the fact.

⁶ The Hayekian (figure 7.B) and Keynesian (figure 7.A) scenarios are easily confused. In the Hayekian scenario the policy rate is lowered below the natural rate. In the Keynesian scenario the natural rate rises above the policy rate owing to the shift of the *MEI* schedule. In both cases, the natural rate ends above the policy rate. Ferlito (2013, p. 210) claims Hayek did not hold the boom was due to the central bank lowering the policy rate below the natural rate, and that view should be attributed to Mises. If that is correct, figure 7.B should be relabeled Mises' narrative. Moreover, it implies Keynes and Hayek had similar views on the causes of the boom, and they only differed regarding how policy should respond to the bust. Hayek advocated letting the market purge itself, whereas Keynes advocated counter-cyclical stabilization policy.

⁷ Cited in President Herbert Hoover's 1951 memoir.

famous 17th century Dutch tulip mania, and it also resonates with Keynes's (1936, p. 156) famed discussion of the stock market as akin to a beauty contest. The economic logic rests on liquidity preference and expectations, with decreased liquidity combined with expectations of higher future asset prices driving buyers to pay higher prices. Asset price bubbles may have subsidiary effects on the real economy via wealth effects on consumption, and via higher equity prices enabling firms to access equity capital on better terms. When the bubble bursts it is painful for individual wealth holders who have shifted out of money and bought high, but that is mitigated by the fact that others have sold high. However, the hangover effects are modest because balance sheets are unimpaired as the bubble has not been debt financed, and nor has the capital stock been impacted much, as the bubble was in existing assets. A classic example of this type of disorder is the stock market crash of 1987, the effects of which dissipated rapidly.

Box D is the most serious, in the sense of corresponding to the most severe form of monetary disorder. In this case, existing assets are purchased using debt finance. In the stock market, that corresponds to buying on margin. In the corporate sector, it corresponds to debt-financed takeovers and leveraged buyouts. The most important sector is real estate (commercial and residential), in which purchases are almost always heavily mortgage financed. The process can also have self-fulfilling aspects as increased asset prices increase collateral values, thereby increasing capacity for further borrowing to finance further asset purchases.

The banking and financial sector is also rendered vulnerable by this type of monetary disorder. Banks make loans secured by real assets (especially real estate), and asset prices will fall if borrowers default *en masse*. That can put banks' credit worthiness at risk, affecting the standing of their financial liabilities and having knock-on effects throughout the financial sector. If banks have securitized and sold their loans, the effect of default is felt by financial institutions that bought those securitized loans.

Banks are also vulnerable to 'whiplash' financial fragility in the event ultra-low interest rates reverse (Palley, 2016, 2018). Having inflated asset prices via ultra-low interest rates, policy reversal causes asset prices to fall. That inflicts large losses on asset holders, and such a process was the principal factor behind the bank run that started to develop in the US banking system in early 2023. Banks which had bought Treasury bonds suddenly experienced large capital losses. Moreover, with short-term interest rates rising, banks were vulnerable to insolvency fears arising from maturity mismatch. Their assets are long term and had been purchased when yields were low, but their financing is short-term and its cost was up.

The important implication is that using debt finance to purchase existing assets can leave a huge footprint. First, the asset stock is large relative to income, so asset stock transactions tend to have a large impact on the debt/income ratio. Second, balance sheets are adversely impacted. Third, all sectors of the economy engage in such transactions or are implicated by such transactions, leaving the economy more vulnerable in aggregate.

Additionally, debt-financed bubbles in existing assets also have spillover implications for AD and GDP. There are two principal channels of spillover. The first is via a positive wealth effect on consumption spending. The second is via a Tobin's q effect whereby higher existing asset prices stimulate investment (Brainard and Tobin, 1968, 1977). The logic of q is especially applicable to real estate construction, in which new buildings are a very close substitute to existing buildings and readily tradeable. That means box D bubbles in existing assets can have additional spillover impacts on investment that are akin to box B.

An example of box D monetary disorder is the 2008 financial crisis, in which major debt default caused a very deep recession and would have destroyed the banking system absent government intervention that guaranteed banks. When the house price bubble burst, it triggered a cascade of defaults that began in the real estate sector and then rippled through the financial and non-financial business sectors with increasing strength. That cascade threatened the prospect of a second Great Depression, which was only warded off by massive policy interventions that put a floor under the banking system and investment grade bond markets, combined with large fiscal stimulus.

Prior monetary excess bled into the financial circuit, creating asset price inflation rather than product market inflation. Furthermore, when the asset price bubble burst, the threat became deflation rather than inflation. Contrary to the monetarist perspective, product market inflation was not part of the picture despite the increase in the money supply. Instead, the financial circuit absorbed the increase via increased asset prices and increased asset transacting.⁸

5. Monetary disorder and the benefit of a large financial sector

The theory of monetary disorder distinguishes between inflationary disorder, currency disorder, and asset market disorder. Currency disorder is associated with currency substitution which occurs because other avenues of protection against monetary disorder are unavailable. A key insight is that currency substitution is more likely in economies with small financial circuits that lack deep and varied financial markets offering a range of asset choices.

Over the last two decades, the concept of financialization has promoted extensive critique of financial markets, arguing they are burdensome and promote inequality (see for example Krippner, 2004; Palley, 2008). That has prompted calls for policies aimed at shrinking the financial sector. Interestingly, the theory of monetary disorder points to an offsetting positive effect of a large financial sector which acts as a sponge that can absorb monetary excess and limit its damage.

That suggests countries face a trade-off regarding the size of the financial sector. On the plus side, deep broad financial markets provide extra policy space by protecting against pressures for currency substitution and pressures for inflationary product market hoarding. On the downsides, a large financial sector tends to promote political economic forces that twist both economic policy and the behavior of corporations in ways that increase economic inequality and veto certain policies.

6. Relevance of monetary disorder to the MMT debate

The construct of monetary disorder also has relevance to the controversy over modern money theory (MMT). Advocates of MMT argue sovereign governments (i.e., governments which issue their own money) are financially and economically unconstrained, except for the full employment barrier at which stage inflation will emerge. That logic has been invoked to

⁸ The use of money in asset transactions gives rise to a separate distinct money demand for non-GDP transactions (Palley, 1995). That demand was historically neglected in the neo-Keynesian ISLM model. It provides a channel through which speculation can be fed into the model.

claim fiscal policy is unconstrained below full employment and governments have the fiscal space to run large monetized budget deficits that can finance a Green New deal, infrastructure spending, and spending on healthcare and education (Kelton, 2020). MMT advocates also recommend that the monetary policy interest rate be set at zero. As part of making the case for that policy configuration, proponents claim MMT is vindicated by the failure of inflation to accelerate in the decade after the 2008 financial crisis despite easy monetary and fiscal policy.

The theory of monetary disorder provides an encompassing framework for placing critiques of MMT and its policy proposals. Epstein (2019, ch.6) and Palley (2020) note that MMT entirely neglects the financial instability implications of a zero-interest rate and the exchange rate implications of pumping money into the economy. Vernengo and Pérez Caldentey (2020) argue that the critique of MMT is amplified in the context of developing economies. Bossone (2023) further elaborates on why MMT's program would not work in a small open financially integrated economy. Dullien and Tober (2022) make similar Keynesian portfolio arguments whereby MMT neglects that money competes for a place in agents' portfolios. Preventing portfolio induced financial disorder requires keeping money scarce. All of the above arguments are consistent with the theory of monetary disorder, providing examples of how disorder might develop as a consequence of MMT's policies.

As regards the absence of acceleration of inflation in the 2010s, there are multiple reasons for that absence, and it is not a vindication of MMT's logic. One reason for absence of accelerated inflation in a twin circuits economy is that policy induced monetary excess may get diverted into the financial circuit, where it will show up as pathological asset price inflation and credit expansion rather than generalized inflation. That is especially true of an economy like the US, which has a large financial sector with a wide array of tradeable assets and well-developed real estate markets, both commercial and residential. Long before full employment is reached or before inflation starts to accelerate, the seeds of monetary disorder can be sown in financial markets via the combination of large money financed budget deficits and near-zero interest rates.

A second reason for the absence of accelerated inflation is structural changes that have rendered the inflation process more quiescent. Phillips' (1958) original article on the Phillips curve used UK data from the period 1861-1913 and showed two percent inflation at just over 2 percent unemployment. To the extent that neoliberalism has recreated the Victorian economy, inflation can be expected to remain quiescent until much lower rates of unemployment prevail than in recent decades. That contrasts with the high inflation of the early 1970s, which reflected a different economic structure in which labor unions were powerful. That power enabled unions to demand productivity-based wage increases combined with indexed cost of living increases even in the presence of significant unemployment. Union wage settlements then served as guideposts for the rest of the economy, both because they set the norm and because non-union firms were willing to match them in order to discourage unionization drives.

A third reason is structural change related to globalization, whereby China now plays the role of buffer supplier to the global economy. That wards off manufactured goods inflation as long as China is willing to accumulate dollar reserves at the current exchange rate. In a sense, China has become an important additional stabilizing actor in the financial circuit, being willing to supply goods in exchange for dollar-denominated financial liabilities.⁹

⁹ China has clearly had a disinflationary impact over the past thirty years. However, geopolitical tensions are causing a recalibration of the China relationship which may diminish China's disinflationary impact, and the adjustment may

The bottom line is: the absence of accelerated inflation in the decade after the 2008 financial crisis is a critique of the Fisher equation monetarist perspective. However, it is not a validation of MMT and its policy recommendations, which remain subject to multiple theoretical critiques and prone to monetary disorder.

7. Monetary disorder and the role of policy

Figure 6 provides a taxonomy of asset market disorders, and it can help frame policy analysis. The figure distinguishes transactions by type of capital (new vs. existing) and type of financing (equity and money balances vs. debt).

Box A benchmarks the analysis and corresponds to the textbook Keynesian situation which focuses on investment (new capital) that is tacitly assumed to be financed with equity or money balances. In a slump, lowering the policy interest rate lowers the hurdle rate of return for investment spending, thereby stimulating investment spending. In a boom, raising the policy interest rate chokes off investment that might otherwise contribute to excess demand and inflationary conditions. There is no adverse footprint via either the existing capital stock or debt. Instead, the worry is lowering interest rates may be asymmetrically weaker and have only modest impacts. That is because excess capacity conditions may diminish the interest sensitivity of investment spending. The textbook Keynesian configuration is free of monetary disorder by assumption. The fact that it has dominated understandings of booms and slumps helps explain why the problem of monetary disorder has been neglected.

Box C corresponds to a Keynes-Kindleberger speculative bubble which involves existing traded assets (particularly equities) financed by money balances. Raising the policy interest rate makes bonds (especially short-term bonds) more attractive relative to equity, thereby reducing speculative demand for equities. However, that policy threatens AD and the real economy by also discouraging investment spending on new capital. In effect, there is a negative spillover from using interest rates to control financial circuit excess. Preventing the emergence of Keynes-Kindleberger speculative bubbles calls for measures targeted at the trading of existing capital. Keynes (1936, p. 160) suggested a stock market transfer tax to tame stock market speculation, and the tax could vary with the perceived degree of speculation.

Box B corresponds to Hayek-Minsky disorder, which involves new investment financed by debt. In Hayek's analysis the emergent disorder is caused by too low interest rates, so higher interest rates would cut it off at its source. In Minsky's analysis, it is attributable to psychological and behavioral developments, and higher rates can also offset those forces. However, a Minskyian boom may be the obverse of a Keynesian slump, with investment inelastic with respect to higher interest rates owing to psychological dispositions. Borrower collateral requirements and quantitative lending restrictions may be more effective by limiting access to investment finance. Such quantitative measures limit the accumulation of high interest rate debt, which is the aftermath footprint. From a structural perspective, debt is more fragile than equity, which speaks to tax policy favoring equity to encourage equity issuance. Yet, tax policy has historically done the opposite.

Box D corresponds to full blown monetary disorder and describes the situation of a debt-financed price bubble in existing capital. As discussed below, this configuration has come to

also cause financial instability. That will tend to remove the favorable tailwind China has provided for inflation and financial stability, and it could even turn it into a headwind.

dominate in the era of financialization and policy is implicated (Palley, 2008, 2021). The disorder is large in scale because it operates on the existing capital stock (including housing and commercial real estate) so that its debt footprint is large when bubbles burst.

The configuration in box D requires different policy tools. Higher interest rates can help discourage a debt-financed bubble in existing assets but, as with a Minskyian boom, asset demand may be interest-inelastic. Moreover, higher interest rates will have a negative spillover effect on new investment, so that tamping a financial circuit bubble in existing assets can have significant negative impact on AD and the real circuit. As with box B, borrower collateral requirements and quantitative lending restrictions can help address the problem. In real estate markets, that can take the form of higher required downpayments. In the stock market, margin requirements can restrain debt-financed stock purchases. Using the tax system to penalize debt finance relative to equity finance will also discourage debt-financed bubbles. The policy challenge is to design interventions that discourage debt-financed purchases of existing capital while not penalizing new investment.

Asset-based reserve requirements (ABRR) are useful in that regard (Palley, 2003, 2004). ABRR require financial firms to hold reserves against different classes of assets, with the regulatory authority setting reserve requirements based on its concerns with each asset class. One concern may be that an asset class is too risky; another may be that the asset class is expanding too fast and producing inflated asset prices. Forcing financial firms to hold non-interest bearing reserves raises the implicit cost of the particular asset class, thereby diminishing demand for that asset type. The important feature is ABRR can potentially be structured to distinguish between new and existing capital.

7.1. Using the model to interpret recent counter-cyclical stabilization policy

The taxonomy in figure 6 helps understand how policy has contributed to emergent monetary disorder over the past twenty-five years. Policy has been conducted as if the economy corresponded to the Keynesian configuration (box A). Consequently, policy has neglected the problem of asset price bubbles, neglected the distinction between new and existing assets, and neglected differences in methods of financing. That neglect explains why counter-cyclical policy aimed at stabilizing the real circuit has created monetary disorder within the financial circuit.

The drift to monetary disorder has involved two intersecting strands of policy. The last thirty years have witnessed a significant weakening of the AD generation process owing to the restructuring of economies along neoliberal lines. That weakening has promoted a strong drift to stagnation, which has called for increasingly extreme counter-cyclical stabilization policy in the form of persistent large monetized budget deficits and ultra-low interest rates. The underlying problem is in the real circuit, but stabilization policy has been conducted in textbook Keynesian fashion without regard to its impact on the financial circuit.¹⁰

¹⁰ There is a large literature on the causes of stagnation after the 2008 global financial crisis. An early explanation of stagnation was provided by Palley (2002, 2011b, 2012) who argues that forty years of neoliberal policy has undermined the aggregate demand generating process by increasing the profit share and income inequality, and via the debt burden resulting from increased household debt. In Western Europe, the effects of neoliberal policy have been augmented by the neoliberal architecture of the euro, which has foisted fiscal austerity on the continent (Palley, 2013). That policy-centered explanation is echoed by Hein (2016). Koo (2011) has emphasized the role of debt in causing what he terms “balance sheet recessions”. Adopting a Marxist perspective, Kotz and Basu (2019)

Monetized budget deficits have injected liquidity into the economy and ultra-low interest rates have lowered the cost of debt. Those developments have spurred debt-financed price inflation in existing assets, particularly commercial and residential real estate. Not only has that been ignored, but it has been welcomed on grounds it generated a consumption wealth effect at a time when AD was weak.

The bursting of a house price bubble was responsible for the 2008 financial crisis, and asset prices have now pushed far beyond their previous peaks. That was possibly viable when interest rates were ultra-low. It is not when interest rates have reversed owing to bumping against full employment and the Covid pandemic shock, which have triggered the re-emergence of inflationary pressures. That configuration promises to crystallize the fractures inherent in a condition of monetary disorder.

The neglect of monetary disorder is also exemplified by the policy response to the Covid pandemic (2020-2022). The pandemic disrupted economic activity, causing a near shutdown of the services sector. Government needed to sustain household incomes for humanitarian reasons and to prevent a homeowner foreclosure crisis. It also needed to sustain the employment structure and reduce permanent business closures which would have lastingly contracted aggregate supply. That spoke to the need for large temporary fiscal transfers. However, those transfers were accompanied by a return to ultra-easy monetary policy that accelerated house price inflation. That inflation was welcomed as delivering a consumption wealth effect, but the wealth effect was unnecessary and counter-productive. First, it re-accelerated the drift to monetary disorder. Second, there was already excess demand for manufactured goods owing to the combination of pandemic induced global supply chain disruption plus a twist in the demand structure away from services (which exposed consumers to Covid infection) toward manufactured goods.

The lesson from the last dozen years and the pandemic is that monetary policy remains blind to the problematic of monetary disorder rooted in the distinction between asset types (new vs. existing) and methods of finance (debt vs. equity and money balances). The failure of policymakers to recognize those distinctions and design policies accordingly means the economy is now afflicted by monetary disorder and vulnerable to the fallout therefrom.

8. Conclusion: political economy and the proclivity to monetary disorder

This paper has proposed a new construct of monetary disorder for assessing monetized budget deficits and easy monetary policy. The underlying theory rests on a twin circuits view of the macro economy. The idea of monetary disorder has relevance to the current era, in which central governments have run large persistent monetized budget deficits, and central banks have engaged in extended monetary ease in the form of near-zero interest rates and QE asset market purchases. Those policies are based on the logic of Keynesian economics whereby a

emphasize the declining rate of profit attributable to the exhaustion of the existing regime of accumulation. Summers (2014) gained significant attention for his revival of Hansen's (1939) construct of secular stagnation which emphasizes demographic and technological slowdown that slows capital accumulation. Eggertsson and Krugman (2012) attribute stagnation to the zero lower bound (ZLB) on nominal interest rates which they claim has obstructed monetary policy from working effectively. The structural stagnation story (Palley, Hein, Kotz and Basu, Summers) holds policy has been relatively ineffective due to the nature of the problem, and monetary policy may be intrinsically unable to solve the problem (Palley, 2016, 2018). In contrast, the ZLB story (Eggertsson and Krugman) holds the problem is due to impediments to effective policy.

large fall in AD warrants robust offsetting monetary and fiscal policy actions. The danger is that policy response may neglect the monetary disorder which is being bred in the financial circuit in the form of inflated asset prices and leveraged balance sheets.

Not only does existing thinking about monetary policy neglect the danger of emergent monetary disorder, policymakers are also using an inflation targeting compass that will not detect the threat. That is because monetary disorder does not necessarily cause inflation. It tends to do so in less developed economies with small financial sectors, but it tends to produce asset market disorder in developed economies with large financial sectors.

Political factors pose a further policy danger. That is because the early stages of emergent monetary disorder are likely to generate a political economy of denial. Individual households and business like rising asset prices even if the ultimate outcome turns out badly for all, and politicians like what households and business like. In effect, the benefits are front-loaded and the costs are back-loaded. That fosters 'populist' political dynamics which facilitate the development of monetary disorder.

Lastly, even though the theory of monetary disorder is consistent with Keynesian economics, Keynesians may be reluctant to acknowledge it for fear of undermining the case for counter-cyclical stabilization policy. That response is misplaced. Keynesian counter-cyclical stabilization policy is needed, but it needs to be part of a policy framework that diminishes the likelihood it will co-produce monetary disorder.

References

- Bezemer D., Gydaki M. and Zhang L. (2016), "More mortgages, lower growth?" *Economic Inquiry*, 54 (1), pp. 652-674.
- Bossone B. (2023), "Modern money theory: why it can't work (and where it might)", *World Economics*, 24 (4), pp. 39-59.
- Brainard W. and Tobin J. (1968), "Pitfalls in financial model building", *American Economic Review*, 58 (May), pp. 99-122.
- Brainard W. and Tobin J. (1977), "Asset markets and the cost of capital", in B. Belassa and R. Nelson (eds.), *Economic Progress, Private Values, and Public Policy: Essays in Honor of William Fellner*, New York: North Holland Publishing Co.
- Cagan P. (1956), "The monetary dynamics of hyperinflation", in Friedman M. (ed.), *Studies in the Quantity Theory of Money*, Chicago: University of Chicago Press.
- Dullien S. and Tober S. (2022), "A monetary Keynesian view of modern money theory", *European Journal of Economics and Economic Policies: Intervention*, 19 (2), pp. 222-237.
- Dutt A.K. (1987), "Alternative closures again: a comment on growth, distribution and inflation", *Cambridge Journal of Economics*, 11 (1), pp. 75-82.
- Eggertsson G.B. and Krugman P. (2012), "Debt, deleveraging, and the liquidity trap: a Fisher-Minsky-Koo approach", *Quarterly Journal of Economics*, 127 (3), pp. 1469-1513.
- Epstein G. A. (2019), *What's Wrong with Modern Money Theory? A Policy Critique*, Cham (Switzerland): Palgrave Macmillan.
- Ferlito C. (2013), "The natural cycle: why economic fluctuations are inevitable. A Schumpeterian extension of the Austrian business cycle theory", *Journal of Reviews on Global Economics*, 3, pp. 200-219.
- Fumagalli A. and Lucarelli S. (2011), "A financialized economy of monetary production", *International Journal of Political Economy*, 40 (1), pp. 48-68.
- Hansen A.H. (1939), "Economic progress and declining population growth", *American Economic Review*, 29 (1), pp. 1-15.
- Hayek F.A. (1932), *Prices and Production*, London: G. Routledge & Sons.
- Hein E. (2016), "Secular stagnation or stagnation policy? A post-Steindlian view", *European Journal of Economics and Economic Policies: Intervention*, 13 (2), pp. 160-171.
- Hein E. (2023), "Inflation is always and everywhere... a conflict phenomenon: post-Keynesian inflation theory and energy price driven conflict inflation", Working Paper No. 224, Berlin: Institute for International Political Economy, Berlin School of Economics and Law.

- Hicks J.R. (1937), "Mr. Keynes and the 'Classics'; A suggested interpretation", *Econometrica*, 5, pp. 147-159.
- Kaldor N. (1982), *The Scourge of Monetarism*, Oxford: Oxford University Press.
- Kelton S. (2020), *The Deficit Myth: Modern Monetary Theory and the Birth of the People's Economy*, New York: Public Affairs.
- Keynes J.M. (1930), *A Treatise on Money*, London: MacMillan & Co.
- Keynes J.M. (1936), *The General Theory of Employment, Interest and Money*, London: MacMillan & Co.
- Kindleberger C.P. (1978), *Manias, Panics, and Crashes: A History of Financial Crises*, Hoboken, NJ: John Wiley & Sons Inc.
- Koo R.C. (2011), "The world in balance sheet recession: causes, cure, and politics", *Real-World Economics Review*, No. 58, pp. 19-37.
- Kotz D.M. and Basu D. (2019), "Stagnation and institutional structures", *Review of Radical Political Economics*, 51 (1), pp. 5-30.
- Krippner G. (2004) "What is financialization?" mimeo, Department of Sociology, UCLA.
- Lavoie M. (2014), *Post-Keynesian Economics: New Foundations*, Cheltenham (UK) and Northampton (MA, USA): Edward Elgar.
- Minsky H.P. (1975), *John Maynard Keynes*, New York: Columbia University Press.
- Moore B.J. (1988), *Horizontalists and Verticalists: The Macroeconomics of Credit Money*, New York: Cambridge University Press.
- Palley T.I. (1993), "Milton Friedman and the Monetarist Counter-Revolution: A Reappraisal," *Eastern Economic Journal*, 19 (1) (Winter), pp. 71-81.
- Palley T.I. (1994), "Debt, aggregate demand, and the business cycle: an analysis in the spirit of Kaldor and Minsky", *Journal of Post Keynesian Economics*, 16 (Spring), pp. 371-390.
- Palley T.I. (1995), "The Demand for Money and Non-GDP Transactions," *Economics Letters*, 48, pp. 145-154.
- Palley T.I. (1997), "Endogenous money and the business cycle", *Journal of Economics*, 65, pp. 133-149.
- Palley T.I. (1998a), "The twin circuits: aggregate demand and the expenditure multiplier in a monetary economy", *Review of Radical Political Economics*, 30 (September), pp. 95-104.
- Palley T.I. (1998b), "Walras' law and Keynesian macroeconomics", *Australian Economic Papers*, 37 (September), pp. 330-340.
- Palley T.I. (2002), "Economic contradictions coming home to roost? Does the U.S. face a long-term aggregate demand generation problem?" *Journal of Post Keynesian Economics*, 25 (Fall), pp. 9-32.
- Palley T.I. (2003), "Asset price bubbles and the case for asset-based reserve requirements," *Challenge*, 46 (May-June), pp. 53-72.
- Palley T.I. (2004), "Asset based reserve requirements: reasserting domestic monetary control in an era of financial innovation and instability", *Review of Political Economy*, 16 (January), pp. 43-58.
- Palley T.I. (2008), "Financialization: what it is and why it matters," in Eckhard Hein, Torsten Niechoj, Peter Spahn, and Achim Truger (eds.), *Finance-led Capitalism: Macroeconomic Effects of Changes in the Financial Sector*, Marburg, Germany: Metroplis-Verlag, and Working Paper 153/2007, Amherst (MA): Political Economy Research Institute, University of Massachusetts; available at: https://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1124&context=peri_workingpapers
- Palley T.I. (2011a), "A theory of Minsky super-cycles and financial crisis", *Contributions to Political Economy*, 30 (1), pp. 31-46.
- Palley T.I. (2011b), "America's flawed paradigm: macroeconomic causes of the financial crisis and Great Recession", *Empirica*, 38 (1), pp. 3-17.
- Palley T.I. (2012), *From Financial Crisis to Stagnation: The Destruction of Shared Prosperity and the Role of Economics*, Cambridge (UK): Cambridge University Press.
- Palley T.I. (2013), "Europe's crisis without end: The consequences of neoliberalism", *Contributions to Political Economy*, 32, pp. 29-50.
- Palley T.I. (2016), "Why negative interest rate policy (NIRP) is ineffective and dangerous", *Real World Economics Review*, No. 76, 5-15, <http://www.paecon.net/PAEReview/issue76/Palley76.pdf>
- Palley T.I. (2018), "Negative interest rate policy (NIRP) and the fallacy of the natural rate of interest: Why NIRP may worsen Keynesian unemployment," *Investigacion Economica*, 77, pp. 7-39.
- Palley T.I. (2020), "What's wrong with modern money theory (MMT): macro and political economic restraints on deficit financed fiscal policy," *Review of Keynesian Economics*, 8 (4), pp. 472-493.
- Palley T.I. (2021), "Financialization revisited: the economics and political economy of the vampire squid economy", *Review of Keynesian Economics*, 9 (4), pp. 461-492.
- Palley T.I. (2023), "Broadening the application of hysteresis in economics: institutions, policy lock-in, psychology, identity, and ideas", *Review of Keynesian Economics*, 11 (4), pp. 460-488.
- Philips A.W. (1958), "The relationship between unemployment and the rate of change of money wage rates in the U.K., 1861-1957", *Economica*, 25 (November), pp. 283-299.
- Rowthorn R.E. (1977), "Conflict, inflation, and money", *Cambridge Journal of Economics*, 1, pp. 215-239.

- Schumpeter J. A. (2009 [1951]), *Essays: On Entrepreneurs, Innovations, Business Cycles, and the Evolution of Capitalism*, New Brunswick, New Jersey: Transaction Publishers.
- Summers L.H. (2014), "U.S. economic prospects: secular stagnation, hysteresis, and the zero lower bound", *Business Economics*, 49 (2), pp. 65-73.
- Toporowski J. (1997), "Monetary policy in an era of capital market inflation", Working Paper No. 279, Annandale-on-Hudson (NY): The Jerome Levy Economics Institute, Bard College.
- Vernengo M. and Pérez Caldentey E. (2020), "Modern money theory (MMT) in the tropics: functional finance in developing countries", *Challenge*, 63 (6), pp. 332-348.
- Werner R.A. (2012), "Towards a new research programme on 'banking and the economy' – Implications of the Quantity Theory of Credit for the prevention and resolution of banking and debt crises", *International Review of Financial Analysis*, 25 (December), pp. 1-17.