IMK
Institut für Makroökonomie und Konjunkturforschung

Marxian and Post-Keynesian Theory - Similarities and Differences

Part 2: Monetary Analysis in Marx and Similarities to Post-Keynesian Approaches

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1. Introduction

Schumpeter (1954)

‘real analysis’:

the equilibrium values of the economic system, i.e. output, employment, distribution and growth, can be determined without any reference to monetary variables.

‘monetary analysis’:

monetary variables are not considered to be merely an inessential veil, but enter into economic theory at the very beginning, and the real equilibrium cannot be determined without reference to monetary variables.

1. Introduction

Real analysis:

Classical orthodoxy, Neoclassical economics, Neoclassical Synthesis, Monetarism, New Classical Economics, Real Business Cycle School, Mainstream New Keynesianism, New Consensus Model:

- Long-run equilibrium relative prices, distribution, output, employment and growth are determined without reference to monetary varibles

- Monetary variables only have short-run disequilibrium effects, due to nominal rigidities in the system

- In the long run, monetary policies only affect the price level or inflation ➔ money is neutral!

➔ Classical dichotomy and Say‘s law hold

➔ Marx‘s economics as ‚real analysis‘?

1. Introduction

Marxian theories of accumulation and crisis:

- Underconsumption theory

- Profit-squeeze theory

- Falling rate of profit due to rising organic composition of capital

➔‚real analysis‘, more similar to Classical than to Post-Keynesian analysis (Marglin 1984, Amadeo 1986)

But: Similarities of Marx and Keynes on money, effective demand and interest rates (Fan-Hung 1939, Alexander 1940, Kenway 1980, Dillard 1984, Foley 1986, Sardoni 1986, …)

➔ Marx‘s analysis as ‚monetary analysis‘?

➔ Implications for distribution and growth theory?

1. Introduction

1. Introduction
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4. Interest, credit and crisis
5. Some conclusions

Hein, E. (2006): Money, interest and capital accumulation in Karl Marx‘s economics: a monetary interpretation and some similarities to post-Keynesian approaches, European Journal of the History of Economic Thought, 13: 113-140

Crotty, J. (1985): The centrality of money, credit and financial intermediation in Marx‘s crisis theory, in: Resnick, S., Wolff, R. (eds.), Rethinking Marxism, New York: Autonomedia

2. Marx‘s ‚monetary analysis‘

2. Marx‘s ‚monetary analysis‘
2.1 Marx‘s monetary theory of value

Value theory as **‚monetary theory of value‘** (Reuten 1988, 1995, Heinrich 1991, Matthews 1996, Williams 2000):

Determination of value by ‚socially necessary labour time‘ (‚abstract labour‘)

‚Socially necessary labour time‘:
1. Labour performed under average technical conditions of production, with average skills and intensity (Capital I: 47)
2. Output of labour has to satisfy a social need, i.e. it has to be sold in market (Capital I: 109)

➔ requires universal equivalent as a social measure/standard: money

➔ against ‚labour embodied theory of value‘ and a ‚commodity theory of money‘

➔ Marx‘s development of the money form (Capital I: chapt. 1): necessity of a universal equivalent for capitalist reproduction ➔ money is not an device facilitating barter!

2. Marx‘s ‚monetary analysis‘
2.1 Marx‘s monetary theory of value

Does money have to be a commodity (gold, silver)?

Marx (Capital I: 75): yes!

Marx‘s monetary theory of value: no necessity of ‚theoretical metallism‘ (Matthews 1996):

Money has to represent ‚socially necessary labour time/abstract labour time‘, and has to be a socially accepted representative of universal equivalent, guaranteed by social institutions.

➔ Money: socially accepted token of value

Perfectly compatible with modern credit money system as seen by PKs: hierarchy of promises to pay, with increasing social validity from the bottom to the top (central bank money). Payment takes place by means of promises to pay with higher validity and liquidity.

Graziani (1997): capital-labour relation requires credit money! Purchase of labour power is logically prior to production!

2. Marx‘s ‚monetary analysis‘
2.2 The level of prices, the rejection of Say’s law and the endogeneity of money

Functions of money (Capital I: chapt. 3)

1. Measure of value and standard of price

Marx: price level is given by relative values of commodities and money commodity

Monetary theory of value:

Price level is determined by entrepreneurial pricing, hence by distribution struggle between capital and labour, trend of accumulation (Foley 1983)

➔ money wage rate is crucial for price level (Matthews 1996), as in PK economics

➔ Level of prices has nothing to do with money supply, but is determined by non-monetary factors!

➔ Quantity of money in circulaton is endogenous:

$$M_c = \frac{pY^r}{q}$$

M_c: money in circulation, p: price level, Y^r: real output, q: velocity of circulation

2. Marx‘s ‚monetary analysis‘
2.2 The level of prices, the rejection of Say’s law and the endogeneity of money

2. Means of circulation:

C - M … M - C

M: money, C: commodity

➔ money separates sale of commodity A from purchase of commodity B, already in simple commodity production
➔ first ‚abstract form of crisis‘, ‚possibility theory of crisis‘ (TSV: 499-508) and rejection of Say‘s law
➔ demand for money as store of value (hoarding) may cause a ‚general glut‘, a lack of aggregate demand,
r➔ requirement: money is not a reproducible commodity!

„Perhaps anything in terms of which the factors of production contract to be remunerated, which is not and cannot be a part of current output and is capable of being used otherwise than to purchase current output, is, in a sense, money. If so, but not otherwise, the use of money is a necessary condition for fluctuations in effective demand.” (Keynes 1933: 86)

2. Marx‘s ‚monetary analysis‘
2.2 The level of prices, the rejection of Say’s law and the endogeneity of money

3. Money as money

a. Money as means of hoarding (store of value)

➔ causes the problem of aggregate demand and ‚abstract form of crisis‘

b. Money as means of payment

separation of sale and realisation of price, seller becomes a creditor, buyer becomes a debtor

➔ money as the standard and the subject of a credit relationship, as in PK monetary economics ➔ credit economy

➔ demand for commodities is not limited by income created in the same period

➔ against Say‘s law

➔ increasing vulnerability and fragility of the system,

➔ second ‚abstract form of crisis‘ (TSV): commodities have to sold at the expected price within a certain period of time in order to meet payment obligations ➔ danger of rupture of credit chains!

c. Money as universal money

➔ world money, universal equivalent

➔ central bank money of the key currency country

2. Marx‘s ‚monetary analysis‘
2.2 The level of prices, the rejection of Say’s law and the endogeneity of money

Rejection of Say‘s law ➔ requires theory of aggregate demand

➔ Simple and expanded reproduction (Capital II: chapt. 20-21)

Sector I: production of means of production

Sector II: production of means of consumption

Prices are given, workers‘ receive subsistence wage (C_w = W)

Simple reproduction:

Sector I: $D_1 + W_1 + \Pi_1 = I_1^g + I_2^g$

Sector II: $D_2 + W_2 + \Pi_2 = C_{w1} + C_{\Pi 1} + C_{w2} + C_{\Pi 2}$

Proportionality condition: $I_2^g = C_{w1} + C_{\Pi 1}$

D: depreciation, W: wages, Π: profits, I^g: gross investment, C_w: consumption out of wages = wages, C_Π: consumption out of profits

2. Marx‘s ‚monetary analysis‘
2.2 The level of prices, the rejection of Say’s law and the endogeneity of money

Aggregate demand

$$\Pi_1 + \Pi_2 = I_1^n + I_2^n + C_{\Pi 1} + C_{\Pi 2}$$

$I^n = I^g$ – D: net investment

Kalecki‘s (1968) interpretation of Marx‘ SoR:
Capitalists cannot determine their sales but only their purchases
➔ capitalists‘ expenditures determine their aggregate profits

Realisation failure: Capitalists‘ cannot sell their output at expected prices if their decisions to spend are too low

➔ ‚possibility theory of crisis‘

‚actual theory of crisis‘ requires examination of expenditure determinants, in particular investment

Kalecki (1968), Sebastiani (1991): there is no such theory in Marx‘s SoR

➔ but: Marx‘s treatment of money flows presents building blocks!

2. Marx‘s ‚monetary analysis‘
2.2 The level of prices, the rejection of Say’s law and the endogeneity of money

Elements of a Marxian theory of investment/effective demand in SoR

A growing economy requires growing monetary advances by capitalists, i.e. in a credit money economy growing capitalist borrowing:

Marx (Capital I: 145-153): M - C … P … C‘ - M‘, Π = M‘-M

„The sustainable rate of growth of the system obviously depends on the level of such new borrowing: the higher the total borrowing, the faster the rate of expanded reproduction that can be achieved by the system.” (Foley 1986: 89)

➔ Availability and price of credit (interest rate) is important for capitalist investment decisions.

➔ Real investment decisions will be affected by expected profit rate and the rate of interest

2. Marx‘s ‚monetary analysis‘
2.3 Credit, rate of interest and rate of profit

Marx (Capital III: 403): bank credit is endogenously created by commercial banks on demand

Marx (Capital III: 524): the quantity of credit money is endogenous for capitalist reproduction:

„The quantity of circulation notes is regulated by the turnover requirements, and every superfluous note wends its way back immediately to the issuer.”

Credit – and hence interest bearing capital – frames circulation of capital:
M - M - C … P … C‘ - M‘‘ - M‘,

$\Pi = M''-M, \quad Z = M'-M, \quad \Pi^n = M'' - M'$

$$\Pi = \Pi^n + Z$$

$$r = r^n + i$$

M: money, C: commodities, Π: Profits, Z: interest payments, Π^n: profits of enterprise, r: rate of profit, i: interest rate, r^n: rate of profit of enterprise

2. Marx‘s ‚monetary analysis‘
2.3 Credit, rate of interest and rate of profit

Inverse relationship between interest rate and rate of profit of enterprise:

„(...) profit of enterprise is not related as an opposite to wage-labour, but only to interest. (...) assuming the average profit to be given, the rate of the profit of enterprise is not determined by wages, but by the rate of interest. It is high or low in inverse proportion to it.” (Marx, Capital III: 379)

Two-stage conflict theory of distribution:

1. Capital vs. labour: rate of profit – real wage rate

2. Industrial capital vs. money capital: rate of profit o.e. – interest rate

➔ Increase in rate of interest rate leaves real wage rate untouched

➔ Different from neo-ricardian monetary theory of distribution (Panico 1985, Pivetti 1991) which ignores distribution conflict between industrial and money capital.

2. Marx‘s ‚monetary analysis‘
2.3 Credit, rate of interest and rate of profit

Similarities of Marx‘s and PK view on interest and credit
(Kaldor 1970, 1982, 1985), Lavoie (1984, 1992, 1996), Moore (1989):

- Rate of interest is a monetary and distributional variable which is exogenous for income generation and capital accumulation
➔ **no natural rate!**

- Determination:
Marx: power struggle between money and industrial capital
PK: central bank policies, liquidity and risk assessments of commercial banks and monetary wealth holders, degree of competition in the commercial banking sector

- Volume of credit and quantity of money are endogenously determined by the requirements of circulation, PK: by creditworthy credit demand

2. Marx‘s ‚monetary analysis‘
2.3 Credit, rate of interest and rate of profit

Distribution effects of changes in interest rates may be different

Marx:	$\partial r/\partial i = 0$
Keynes:	$\partial r/\partial i > 0$ (interest rate determines mec)
Kaldor/Robinson	$\partial r/\partial i < 0$ (negative effect of i on g and hence on r)
Kalecki:	$\partial r/\partial i = ?$ (effect depends on interest elasticity of the mark-up and on effects in investment and saving function of the model)

3.

Implications for distribution and growth theory: similarities to PK approaches

3. Implications for distribution and growth theory: similarities to PK approaches

3.1 Orthodox Marxian ‚real' theories of accumulation:

Technical change and distribution conflict between capital and labour determine accumulation path, money and realisation problems only in the short run (Dumenil/Levy 1999, Shaikh 1978, 1983, 2007, Skott 1989, 2008)

$$g = \frac{\Delta K}{K} = \frac{\Delta K}{\Pi}\frac{\Pi}{K} = ar$$

g: accumulation rate, K: stock of capital, Π: profits, a: propensity to accumulate

➔ Distribution is determined in real terms in the labour market and capitalists' saving determines accumulation

Crisis requires FROP as a precondition:

➔„profit squeeze" (Capital I: 574-82, Goodwin 1978, Glyn/Sutcliffe 1972, Gordon et. al 1987)

➔ „falling-rate-of-profit-due-to-a-rising-organic-composition-capital" (Capital III: 211-66, Shaikh 1978, 1983, 1987)

3. Implications for distribution and growth theory: similarities to PK approaches

3.2 Elements of a Marxian ‚monetary' theory of accumulation:

- Distribution cannot be assumed to be determined in real terms in the labour market

- Capital accumulation is independent of saving in the long run and rather determines saving via distribution or utilisation

- Capitalists have access to credit, endogenously generated by the banking sector, quantities of money and credit are endogenous

- The rate of interest is a monetary phenomenon and a distributional variable, exogenous for accumulation, hence no natural rate

➔ Broad similarities to PK-theories of distribution and growht (Kaldor, Robinson, Kalecki)

Full utilisation of capacities given by the capital stock in the long run?

Marx (Capital I: 424): high degree of elasticity of production with respect to demand, hence unlikely effects on prices and distribution (different from Kaldor/Robinson and close to Kalecki)

3. Implications for distribution and growth theory: similarities to PK approaches

3.3 A Kaleckian model representing Marx‘s monetary theory of accumlation

Lavoie‘s (1993) ‚post-Classical‘ model without interest elastic mark-up/ profit share, as in Hein/Ochsen 2003)
➔ monetary extension of Bhaduri/Marglin (1990),

No technical change, no overheads, closed economy without state,

No depreciation of capital stock

No capacity constraints

Prices are not affected by changes in aggregate demand

Cost-determined pricing, mark-up reflects relative powers of capital and labour in the labour market as well as degree of competition in the goods market.

Mark-up determines distribution between capital and labour.

3. Implications for distribution and growth theory: similarities to PK approaches

(1) $$p = (1+m)\frac{w}{y}, \qquad m > 0, \frac{\partial m}{\partial i} = 0 \ .$$

(2) $$h = \frac{m}{1+m}, \qquad \frac{\partial h}{\partial i} = 0$$

(3) $$\sigma = \frac{S}{K} = \frac{\Pi - Z + s_z Z}{K} = r - i(1-s_Z) = hu\frac{1}{v} - i(1-s_Z), \qquad 0 < s_z < 1$$

p: price, m: mark-up, w: nominal wage, y: labour productivity, h: profit share, σ: saving rate, S: saving, K: capital stock, Π: total profits, Z: interest payments, s_z: propensity to save out of interest, r: rate of profit, i: rate of interest, u: rate of capacity utilisation,

3. Implications for distribution and growth theory: similarities to PK approaches

(4) $$r = \frac{\Pi}{Y}\frac{Y}{Y^p}\frac{Y^p}{K} = hu\,\frac{1}{v}$$

(5) $$g = \frac{I}{K} = \alpha + \beta u + \tau h - \theta i, \qquad \alpha, \beta, \tau, \theta > 0, g > 0 \text{ for } r - i > 0$$

(6) $$\sigma = g$$

(7) $$\frac{\partial \sigma}{\partial u} - \frac{\partial g}{\partial u} > 0 \quad \Rightarrow \quad \frac{h}{v} - \beta > 0.$$

Y: ouput, Y^p: potential output, g: rate of capital accumulation

3. Implications for distribution and growth theory: similarities to PK approaches

(8) $$u^* = \frac{i\left(1 - s_Z - \theta\right) + \alpha + \tau h}{\frac{h}{v} - \beta}$$

(9) $$g^* = \sigma^* = \frac{i\left[\beta\left(1 - s_Z\right) - \frac{h}{v}\theta\right] + \frac{h}{v}\left(\alpha + \tau h\right)}{\frac{h}{v} - \beta}$$

(10) $$r^* = \frac{\frac{h}{v}\left[i\left(1 - s_Z - \theta\right) + \alpha + \tau h\right]}{\frac{h}{v} - \beta}$$

Equilibrium values for growth path are jointly determined by the monetary rate of interest, the distribuion variable and the parameters in the saving and the investment function

3. Implications for distribution and growth theory: similarities to PK approaches

(11) $$\frac{\partial u}{\partial i} = \frac{1 - s_Z - \theta}{\frac{h}{v} - \beta}$$

(12) $$\frac{\partial g}{\partial i} = \frac{\beta(1 - s_Z) - \frac{h}{v}\theta}{\frac{h}{v} - \beta}$$

(13) $$\frac{\partial r}{\partial i} = \frac{\frac{h}{v}(1 - s_Z - \theta)}{\frac{h}{v} - \beta}$$

Change in power relations between monetary and industrial capital has no unique effect on the values of the equilibrium growth path: effects on distribution between firms and rentiers, on firms‘ investment and on rentiers‘ consumption

3. Implications for distribution and growth theory: similarities to PK approaches

Table 1: Responses of the rate of capacity utilisation, the rate of accumulation and the rate of profit to a variation in the interest rate: possible stable regimes of accumulation*

	$\frac{\partial u}{\partial i}$	$\frac{\partial g}{\partial i}$	$\frac{\partial r}{\partial i}$
	$\frac{\partial r}{\partial i} > 0, \text{if} : 1 - s_Z - \theta > 0$	$\frac{\partial g}{\partial i} > 0, \text{if:} \ \beta(1 - s_Z) - \frac{h}{v}\theta > 0$	$\frac{\partial r}{\partial i} > 0, \text{if} : 1 - s_Z - \theta > 0$
1	0	–	0
2	–	–	–
3	+	–	+
4	+	+	+

Source: Hein and Ochsen (2003: 415) * Note that the stability condition implies: $\frac{h}{v} > \beta$

3. Implications for distribution and growth theory: similarities to PK approaches

Results from the model:

Variation in the growth path may be caused

- by changes in power relations
  between firms and rentiers and
  between capital and labour,
- by changing reaction coefficients
  in saving function and
  in investment functions

➔ No predetermined growth path by real factors of the economy

➔ Crisis of accumulation and economic stagnation cannot be explained by real forces alone, but need to take into account interaction between monetary and real variables in a concrete historical analysis!

4. Interest, credit and crisis

4. Interest, credit and crisis

So far: endogenous credit is indispensable for growth in capitalist economy, but no reason to assume a smooth equilibrium expansion process

➔ Marx (Capital III, chapt. 27): credit is overheating cyclical expansion and intensifying cyclical downturn

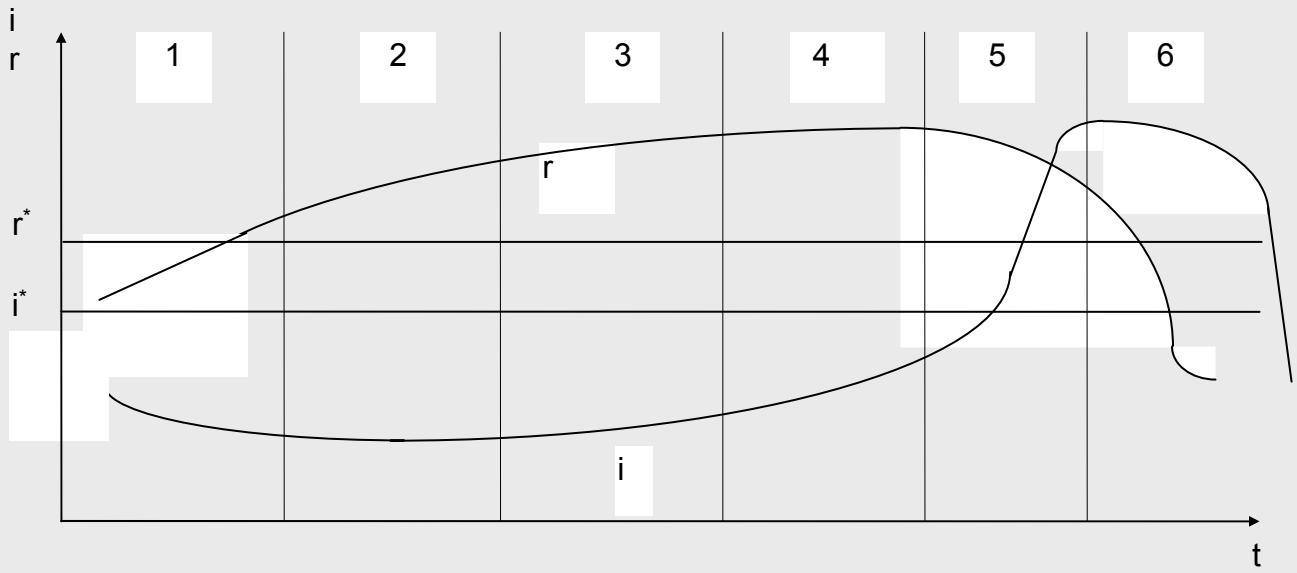
➔ Main driver for accelerating effects of credit: movement of rate of profit and rate of interest over the cycle (Capital III, chapt. 22)

Profit rate is driven by capacity utilisation, distribution and technical change (r = uh/v)

Interest rate is mainly driven by credit supply considerations (Capital III, chapt. 27)

4. Interest, credit and crisis

Profit rate and interest rate over the business cycle (Capital III, chapt. 30)



Source: Hein (1996: 269)

r: rate of profit, i: (real) rate of interest, r*: average profit rate over the cycle, i*: average interest rate over the cycle

1: tranquility, 2: upturn, 3: prosperity, 4: overproduction, 5: breakdown, 6: downturn, stagnation

4. Interest, credit and crisis

1. tranquility, 2. upturn, 3. prosperity:

low rate of profit and low interest rate;
re-investment cycle increases capacity utilisation and profit rate;
positive profits and profit expectations makes credit demand increase; climate of confidence makes financial intermediaries expand credit supply at moderate interest rates
➔ credit accelerates expansion
➔ increasing leverage, interest rate remains below profit rate

4. overproduction:

interest rate starts to rise but remains below profit rate
leverage rises, increasing speculative investment
maximum expansion of credit
real investment stagnates (due to increasing real wages)
profit rate stops rising
➔ high degree of fragility

5. breakdown

trigger: fall in profit rate due to distribution or utilisation (unclear in Marx)
fall in investment demand, falling capacity utilisation
debt deflation, rupture of credit chains ➔ credit crisis
rising demand for liquidity
rise in interest rates above the profit rate
collapse of real investment

6. downturn, stagnation

breakdown of firms, devaluation of capital,
falling demand for credit, interest rates start to fall due to falling liquidity preference

4. Interest, credit and crisis

Results:

- Credit system accelerates upswing and downswing
- Crisis, however, is caused by fall in the profit rate
- Duration and severity of crisis depends on the fragility of the contract-credit system

➔ Similar to Minsky‘s ‚financial instability‘ hypothesis

Minsky: fragility in upturn increases due to falling risk assessments by lenders and borrowers (increasing speculative and Ponzi finance), external shock is required for crisis to emerge

Problem in both approaches:

1. no paradox of debt, upturn is associated with increasing leverage ratios
2. role of accelerating inflation in upturn and central bank interventions as trigger of crisis remains unclear

5. Conclusions

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5. Conclusions

Marx‘s economic analysis provides a coherent framework for ‚monetary analysis‘

- Monetary theory of value, requires credit money, consistent with PK view on credit economy,

- Rejection of Say‘s law in TSV and SoR ➔ Marx‘s ‚principle of effective demand‘: investment determines profits and saving, similar to PK distribution and growth theory (Kaldor, Robinson, Kalecki)

- Growing economy requires endogenous credit for finance purposes, conditions of credit are crucial for expansion, credit is endogenous, as in PK monetary theory

- On the one hand, credit allows for expansion, but on the other cyclical up- and downturns are accelerated, as in Minsky

- Interest rate is a monetary phenomenon, a distribution parameter (between monetary and industrial capitalists), and exogenous to income generation and accumulation, no natural rate, hence similar to PK monetary theory

- Two stage conflict theory of distribution, similar to Kalecki

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5. Conclusions

Integration of main elements of Marx‘s monetary theory into simple Kaleckian model shows:

- Equilbrium growth path is determined by monetary interest rate and parameters in investment and saving function

- Monetary variable has an impact on growth path, however, not unique

- neither growth path nor crisis can be determined from real analysis as in orthodox Marxian models

➔ No ‚general laws of motion‘ but concrete historical and empirical analysis taking into account interaction of monetary and real forces (as in Marx‘s view on credit and crisis in Capital III)

➔ This interpretation of Marx‘s theory nicely fits into a broader PK framework

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THE END

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