Revising the quantity theory of money in a financial balance approach

Policy implications for the world slowdown

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Outline

1. Economics after the Great Recession
2. The QTM paradigm
3. The leakages approach
4. The 'new' QTM for fiat floating currencies

In the aftermath of the Great Recession

Two views:

1- A 'natural experiment' disproving the effectiveness of conventional policies, calling for paradigm shift, re-opening, re-visit, restore old ideas in a new light

2- Proof that we ought to restore classic principles and best-practice policy rules which had been breached by poor policy implementation

Pre-crisis 'New Consensus'

Bernanke (2004) explains the Great Moderation:

*Improved monetary policy has likely made an important contribution not only to the reduced volatility of inflation (which is not particularly controversial) but to the reduced volatility of output as well. - I am confident that monetary policymakers will not forget **the lessons of the 1970s**.*

Poole (2005) describes the New Consensus:

*The fundamental issues that created **an enormous gulf between macroeconomists in the 1960s** have been resolved. Of course, ... agreement on the most important fundamentals does not eliminate controversy about many important details.*

Analogy between the failure of fine tuning and the delusion of a Great Moderation?

1970s: Policies called into question

1970s stagflation

- Defining event of a policy shift
- Delusion of "We are all Keynesians now" fine tuning
- Lucas-Sargent call for ***re-opening*** closed issues, **revisit** outmoded classical principles, **restore** the theory of choice
- From fine tuning (discretion) to policy rules

The 1970s paradigm shift

Classical model in a new light:

Rational expectations with imperfect information

Policy approach:

Transition from discretionary to rule-based policy

And more importantly:

No fiscal policy feedback rule

Common element in the 'Monetarist Keynesian' tradition

The central bank is the **monopolist issuer of fiat money** and, without gold or other constraints, it is solely responsible for **sound money management**, i.e., ensuring price stability (this being **the reason that makes fiat money desirable**)

Case for paradigm shift

Neo-chartalism, functional finance, 'modern money theory' have questioned precisely this notion of fiat money

The government is the **monopolist issuer of fiat money** and, without gold or other constraints, it should employ it to **provisioning itself with real resources for the public purpose** and **optimizing real economic performance**

On that basis, this paper advocates a deep revision of the **Quantity Theory of Money** (pillar of Monetarist-Keynesian (*MK*) models) to be renamed the **Quantity Theory of Net government spending**

The QTM paradigm: Definition, identity, theory

Defining V:

$$\dot{V} = \dot{Y} - \dot{M}$$

From identity to theory:

$$\dot{M} \rightarrow \dot{P}\dot{y} - \dot{V}$$

Monetary expansion is the rate of change of a 'monetary aggregate' (= means of payment held by the public, including 'central bank money' and 'bank money')

The QTM paradigm: Two claims

QTM makes <u>two claims</u>:

M (or i) ⟹ **AD = NGDP** ⟹ **y, P**

1-Monetary expansion spurs spending (thus, nominal gdp)

2- Demand expansion fuels inflation

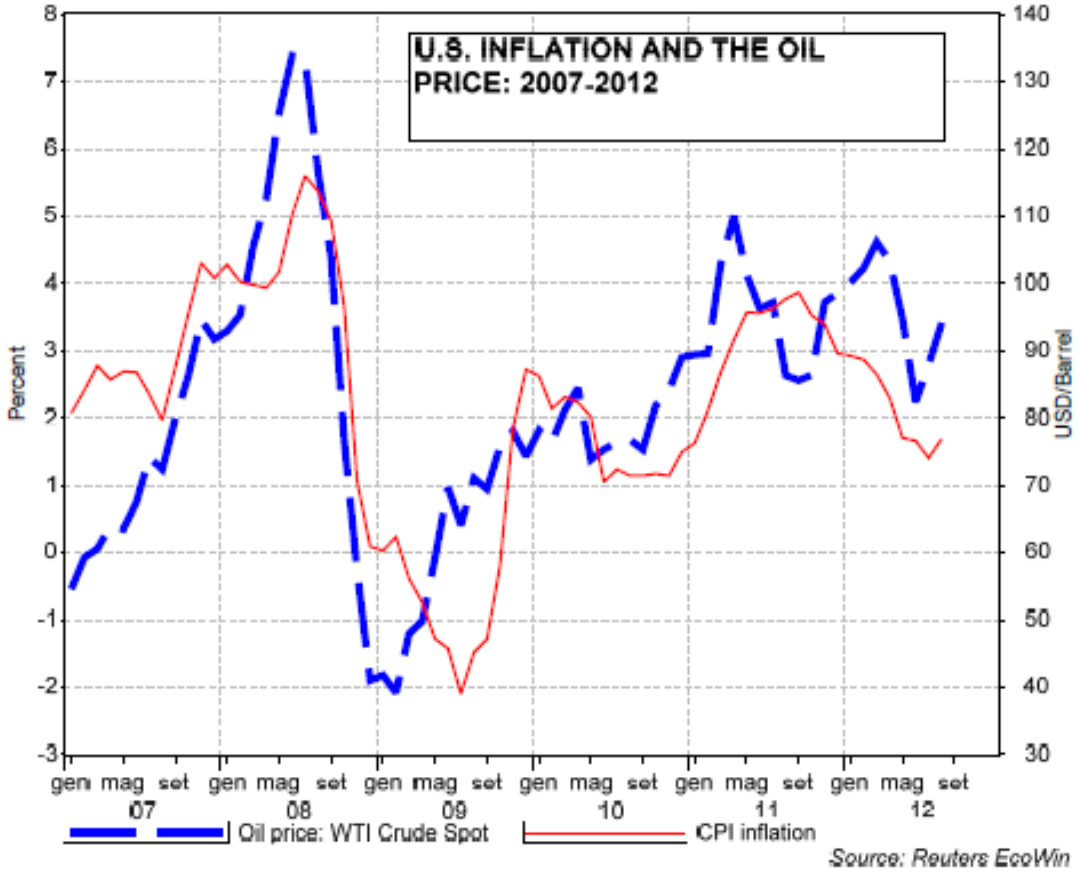
The QTM paradigm:
Demand expansion fuels inflation

Aggregate demand may get high enough to be inflationary (no-brainer)

'Mark one' M-K controversies:

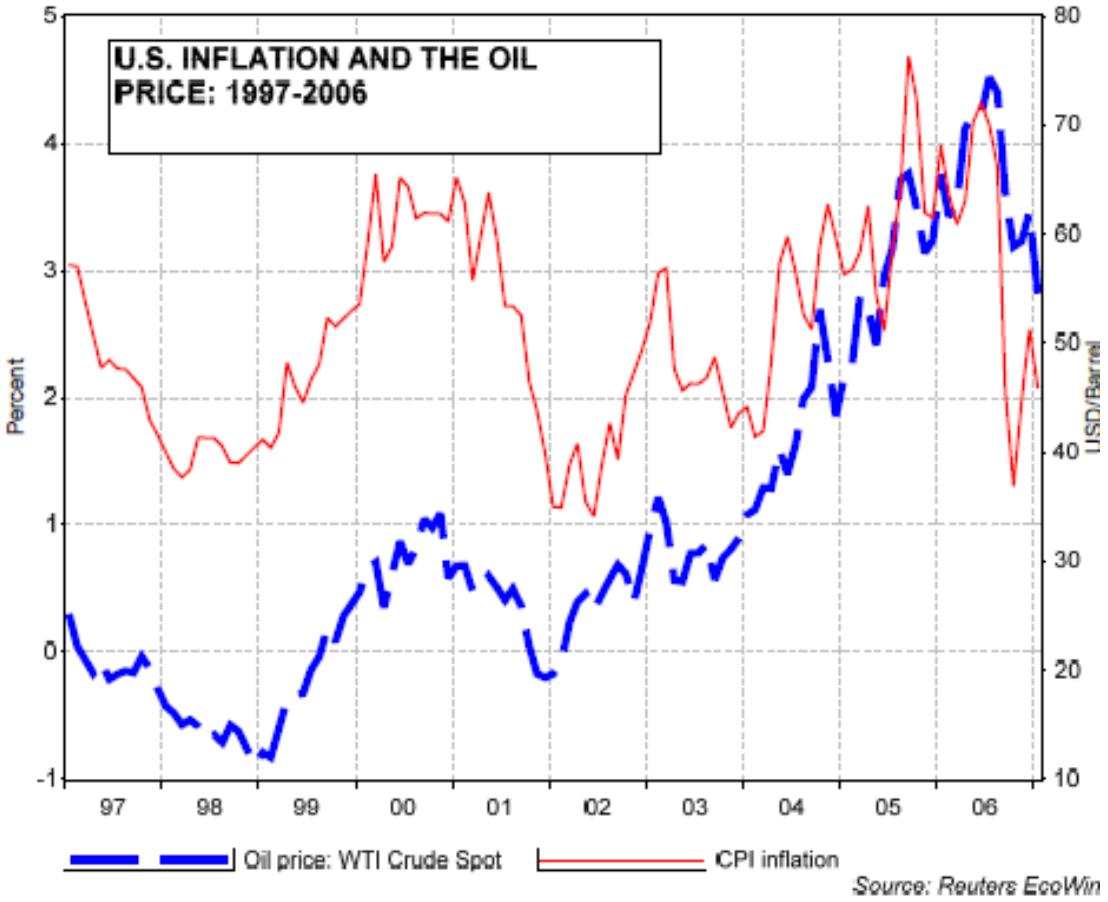
Real and nominal effects: How Y divides up into P and y? How far does supply accommodate demand without inflation? Defining full capacity, NAIRU, estimating output gap, super-neutrality, commodity inflation, etc.

Demand-driven inflation?



Evidence that cost push inflation is by far the most common...

Demand-driven inflation?



...yet, QTM argues that transmission affects commodity prices

The QTM paradigm:
Monetary expansion spurs spending

'Mark two' M-K controversies:

Transmission:

Is velocity stable? What if agents hoard? What if commercial banks hoard? Liquidity trap, Lags of response, Does spending include commodities?

'Mark three' M-K controversies:

Monetary impulse:

Which broad money aggregate? How do central banks control money?

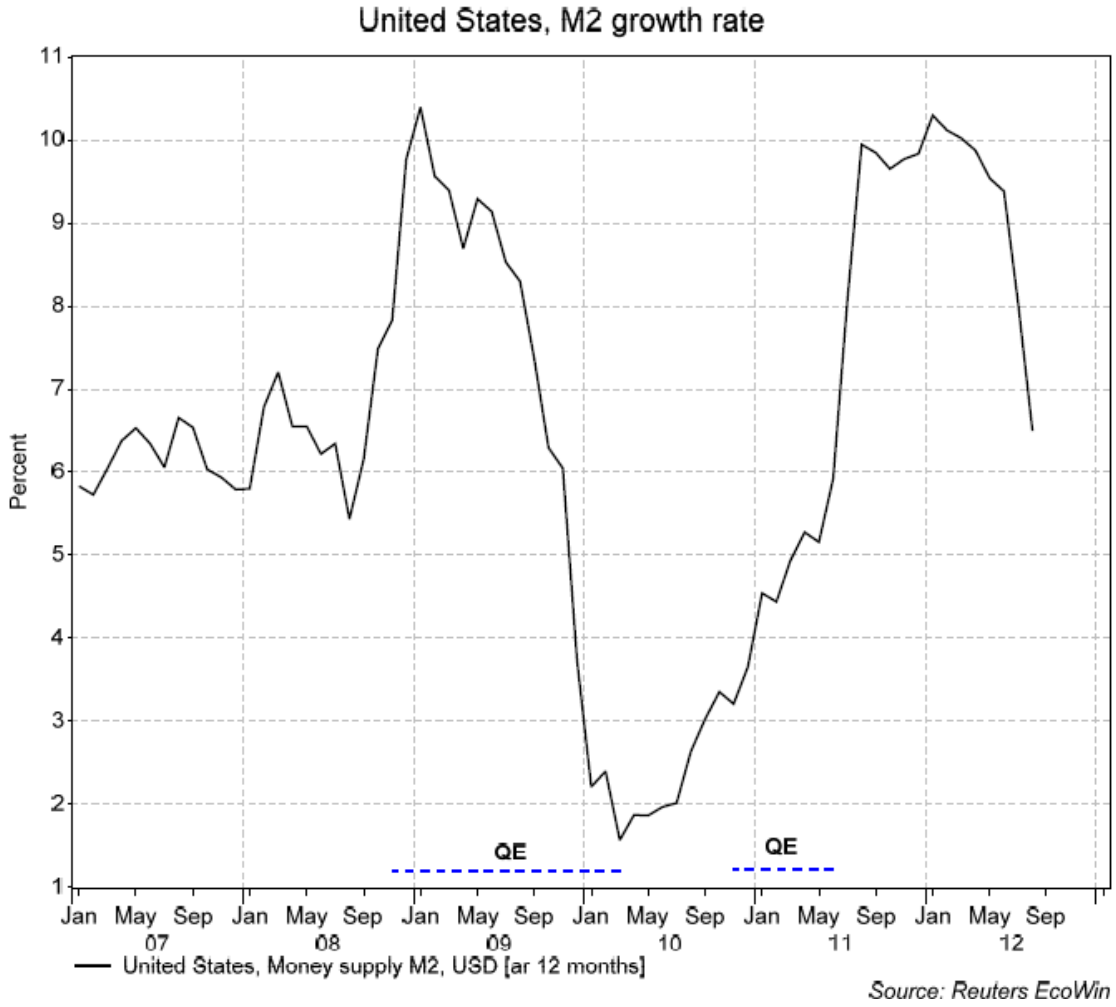
Monetary impulse?

MK paradigm:

Central banks can choose between an interest rate and a money aggregate (base money + money multiplier)

The latter option is not operational (*and central bankers seem to know...*)

U.S. M2 growth rate and QEs



Central banks view of the monetary impulse

ECB: "*The mechanical link between monetary policy and the supply of money that is embedded in the money multiplier approach is not a particularly useful framework either for understanding changes in monetary aggregates or for designing appropriate monetary policy responses, even in an environment where the zero lower bound for nominal interest rates may become binding.*"

The "*fundamental drawback of the money multiplier framework: the money multiplier approach assumes that both banks and the money-holding sector respond in a predictable way to an adjustment of the monetary base by the central bank.*"

...in a predictable way?

The problem with the money multiplier is much deeper than predictability of banks' behavior:

Bank lending ability is never reserve-constrained (*and central bankers seem to know...*)

It is time for textbooks to drop the money multiplier as a 'pedagogical' device!!

Jaime Caruana (BIS): *Unconventional monetary policies in time of crisis*, 2009

"*Bank lending is determined by **banks' willingness** to grant loans*" "*An expansion of **reserves ... need not give banks more resources to expand lending***." "*Whether a bank holds liquid assets in the form of, say, reserves, one-week Treasury bills or one-month central bank bills **will not make a material difference** to its willingness and ability to lend. Typically, the main constraint on credit creation, if the demand for credit is there, is **bank capital relative to regulatory** minimum or market requirements.*"

Claudio Borio and Piti Disyatat (BIS), *Unconventional monetary policies: an appraisal*, 2009

"The underlying premise of the [...] proposition, which posits a close link between reserves expansion and credit creation, is that bank reserves are needed for banks to make loans. Either bank lending is constrained by insufficient access to reserves or more reserves can somehow boost banks' willingness to lend. An extreme version of this view is the ***textbook notion of a stable money multiplier****: central banks are able, through exogenous variations in the supply of reserves, to exert a direct influence on the amount of loans and deposits in the banking system." "In fact, the* ***level of reserves hardly figures in banks' lending decisions****. The amount of credit outstanding is determined by banks' willingness to supply loans, based on perceived risk-return trade-offs, and by the demand for those loans. The aggregate availability of bank reserves does not constrain the expansion directly." "The main exogenous* ***constraint on the expansion of credit is minimum capital requirements.*** *" "A striking recent illustration of the* ***tenuous link between excess reserves and bank lending is the experience during the Bank of Japan's "quantitative easing" policy*** *in 2001-2006."*

Seth Carpenter and Selva Demiralp, *Money, Reserves, and the Transmission of Monetary Policy: Does the Money Multiplier Exist?* Board of Governors of the Federal Reserve System, 2010

"*Our findings in this paper support the argument that* ***shocks to reservable deposits do not change banks' lending decisions****." "To be sure, the low level of interest rates could stimulate demand for loans and lead to increased lending, but* ***the narrow, textbook money multiplier does not appear to be a useful means of assessing the implications of monetary policy for future money growth or bank lending.****" "our results indicate that bank loan supply does not respond to changes in monetary policy through a bank lending channel, no matter how we group the banks."*

Antoine Martin, James McAndrews, David Skeie, *A Note on Bank Lending in Times of Large Bank Reserves*, Federal Reserve Bank of New York, 2011

"*The key determinant of bank lending is the* ***difference between the return on loans and the opportunity cost of making a loan.*** *We show that this difference does not depend on the quantity of reserves. Moreover, if banks have positive balance-sheet cost frictions,* ***increases in reserves may actually reduce bank lending****."*

An adapted QTM: The ECB view

"The central bank provides funds to the banking system and charges interest. Given its **monopoly power over the issuing of money**, the central bank can fully determine this interest rate."

"In contrast to the textbook account, the implementation of monetary policy is typically done by steering short-term money market interest rates and accommodating the demand for outside money."

Monthly Bulletin, October 2011

Accommodating?

The use of the word “accommodating” seems to imply that the central bank has the option, if policy so required, not to *accommodate* the demand for reserves.

In reality, central banks have no option other than supplying the amount of reserves banks require to settle payments through standard operations, bilateral lending, or intra-day overdrafts.

Yet, it can unilaterally set the interest rate on reserves borrowing and reserves holding.

When the money impulse is the rate of interest

From the ECB Bulletin:

Broad money is supplied by bank lending (loans create deposits)

Bank lending depends on risk aversion, creditworthiness, regulation, capital buffers, intermediation spread *(notice: NOT reserves!)*

Central banks can control M indirectly, not through the base + multiplier (*not operative!*), but through the interest rate and its **lending and balance sheet effects on banks**

This latter claim is a variation of QTM:

i ⟹ **M** ⟹ **Aggregate demand**

The (not so 'new') MK policy consensus

Monetary (i.e., interest rate) policy is the primary tool to produce a change in demand

Fiscal expansion financed by borrowing has little or no effect on demand: it may directly create demand, yet it needs funding (competing with private funds), so the net effect is ambiguous - unless it is **monetized**

Monetized?

Because reserves do not finance lending, the central bank purchasing Treasury securities has no effect on demand except lowering interest rates (with ambiguous effects).

More below!

Need for QTM paradigm shift

Demand depends on 'some' monetary conditions

No logical evidence that any aggregate the central bank is believed to control causes demand and nominal income changes

Failed attempts to revive world economies through a combination of Quantitative Easing and fiscal contraction can be seen as a 'natural experiment' that shows the failure of QTM, notably of one of its propositions: That a managed expansion of the money supply has an expansionary effect on demand and thus on nominal gdp

QTM ignores how fiscal operations directly affect the net worth of the private sector

A seeming alternative to QTM: The leakages approach

A leakage is any flow of income that goes unspent

The size of leakages affects demand

MK: A leakage is an **actual deficiency of demand** only if there is **no mechanism that transfers the unspent income to spenders**.

Because MKs assume that savings fund investment through the market for loanable funds, a leakage only reduces demand as a result of hoarding behavior, or too high interest rates set by central bank (higher than 'natural' rate)

Leakages without QTM

Josef Steindl's analysis of savings:

Shifts attention from 'real savings' (S, from NIPA) to financial savings (from FOFA).

Uses the flow-of-funds accounts and the net lending/borrowing position of each sector:

$(I - Sb) + (X - M) + (G - T) = (Sh - H)$

Steindl's savings

Savings are always a leakage,

depress profits,

entail other sectors' borrowing,

make government deficit higher.

Private sector's demand changes when the private sector has a too low/high indebtedness relatively to its own target

Steindl's government deficit

Government deficit fills the gap between actual and desired sector's indebtedness,

is endogenous, "suffered rather than contrived,"

does not compete with funds for investment

Deliberate actions of fiscal retrenchment generate more leakages

Kaldor's reversed causality

M ⟸ Aggregate demand

The non-bank private sector's financial assets is the mirror-image of the Net government spending

The non-bank private sector allocates financial assets as desired (cash, deposits, other interest-bearing deposits, public sector debt)

Summary of discussion and paradigm shift

QTM: Demand requires and responds to funding

saving ⇨ spending

From Kaldor and Steindl: Savings must be funded as much as spending - Net government spending provides such funding

Net government spending ⇨ funding ⇨ savings, spending

Paradigm shift.....

Private financial savings are not
a source of funds

Private financial savings
must get funded!

Frank and Ernest

The new QTN paradigm

M/ i ⟹ **AD = NGDP** ⟹ **y, P** **(QTM)**

N ⟹ **AD = NGDP** ⟹ **y, P** **(QTN)**

N = Net government spending

Definition of sectors in a flow-of-funds framework

Treasury (sovereign currency issuer): Has constitutional power to issue a **floating fiat currency** (i.e., a *central bank liability*) acceptable in tax payments; Delegates a Central Bank to manage all monetary operations; Has an account at the central bank for its own operations; Executes and receives payments as per approved budget.

Central bank (delegated currency issuer): Provides an account to the Treasury; Provides accounts to banks; Prints currency on demand; Makes loans to banks; Set the interest rate on its loans.

Banks: Licensed to provide payment services and loans; Have accounts at the central bank with overdraft facilities; Bank deposits are guaranteed by the Treasury.

Non-bank private sector: Households and business firms.

Foreign sector: All non-domestic entities.

'Private sector' includes Banks and Non-bank private sector.

'Currency users' include Banks, Non-bank private sector, and Foreign sector.

How does 'money' get 'injected' into circulation?

Any payment **between currency users** may change individual sectors' financial position, redistribute property of real and financial assets, create new financial assets/liabilities, and yet, it **does not change the net total financial assets (NFA) held by all users**.

When a **currency issuer is on one side** of a payment transaction, this can

a. buy/sell output
b. receive/give unilateral payments (taxes, benefits)
c. sell/buy an alternative sovereign-issued liability

Payments a. and b. **change the NFA held by currency users**.

Payments c. leave the net financial assets held by currency users unchanged.

'ΔM' vs. 'ΔNFA'

Currency issuer's monetary liabilities are held by the 'currency users' sector'

Δ**Banknotes and coins**: On demand conversion of 'reserves': Δ**NFA=0**

Δ**Reserves:** When a *currency issuer* lends to/is repaid by banks: Δ**NFA=0** and when it buys/sells goods and services, tax, pays benefits → Δ**NFA**

Δ**Bank deposits**: Bank lending: Δ**NFA=0** and when a currency issuer buys/sells goods and services, tax/pays benefits → Δ**NFA**
[Mosler-Forstater call bank lending "*a leveraging of the currency*"

Mosler-Forstater, A General Analytical Framework for the Analysis of Currencies and Other Commodities, 1999

Monetary operations...

...leave the net worth of the private sector unchanged (except for interest payments)

Central Bank			Banking System	
Assets	Liabilities		Assets	Liabilities
	+ Reserves		+ Reserves	
+ Securities			– Securities	
				ΔNW=0

Central Bank			Banking System	
Assets	Liabilities		Assets	Liabilities
+ Loans	+ Reserves		+ Reserves	+ Loans
				+ Interest
				ΔNW<0

Fiscal operations...

...change the net worth of the private sector

Example: **Net spending > 0**

Treasury	
Assets	Liabilities
– TS Account	

Central Bank	
Assets	Liabilities
	– TS Account
	+ Reserves

Banking System	
Assets	Liabilities
+ Reserves	+ Deposits

Non-bank private sector	
Assets	Liabilities
+ Deposits	
	ΔNW>0

Fiscal operations...

...change the net worth of the private sector:

Example: **Net spending < 0**

Treasury	
Assets	Liabilities
+ TS Account	

Central Bank	
Assets	Liabilities
	+ TS Account
	– Reserves

Banking System	
Assets	Liabilities
– Reserves	– Deposits

Non-bank private sector	
Assets	Liabilities
– Deposits	
	ΔNW<0

From M to N

Recall: (S – I) + (M – X) = (G – T)

(S – I) = ΔNFA_D

(M – X) = ΔNFA_F

(G – T) = Net government spending = N =
= Net outflow of currency issuer liabilities

$$N = \Delta NFA_D + \Delta NFA_F$$

NFA_D, held by domestic residents; NFA_F, held by foreigners

Note: Because the world is a closed system, net private financial assets are ultimately being funded by N

Combining fiscal and monetary operations

Currency issuer liabilities:

- Reserves (R)
- Currency (C)
- Government securities (B)

$$N = \Delta R + \Delta C + \Delta B$$

From QTM to QTN

$\Delta M \rightarrow \Delta Py$

(given ‘velocity of circulation’)

$\Delta N \rightarrow \Delta Py$

(given 'private savings desire')

From QTM to QTN

N(=R+C+B) ⟹ AD = NGDP ⟹ y, P

When private desired ('volitional') financial savings are lower than / cannot be funded with the available net financial assets, then demand rises / drops

Q theory does hold, but for net (*not gross*) financial assets

Inflation can still be seen as “too much money chasing too few goods”, where “too much money” means “too much financial savings available”, not “too much money in circulation”.

Some policy implications

QE does not add to NFA, relies on the private sector willing to increase its leverage, and mops away interest income

Fiscal 'austerity' forces the private sector to reduce demand (output and employment) until the deficit endogenously matches the desired savings

A single country can grow with low budget deficits if it exports to countries with large budget deficits

Given the endogenous nature of the budget deficit, consideration should be given to a fiscal policy rule that adjusts its size before unsatisfied demand for NFA forces adjustment (e.g., ELR)