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Comments welcome

Post kansas

A Market Based Automatic Intermediary Stabilization Mechanism

1. An existing, near-perfect, savings-into-capital flow

In a bank-less, Arrow-Debreu-McKenzie general equilibrium world, there would be no financial intermediaries: savers and investors equipped with perfect information would interact in costless ways at optimal prices. At the other extreme, Ponzi schemes benefit neither saver nor investor – just the intermediary. Current financial systems sit somewhere on this spectrum between perfect markets and perfect theft.

Automatic stabilizers are normally associated with the fiscal (tax and transfer payment) system; financial intermediaries are more often associated with destabilizing, rather than stabilizing influences. The global financial crisis has created a market for fresh reform proposals; however, a modified version of an existing savings-into-capital flow can provide a permanent antidote to the periodic crunching of credit.

One type of existing intermediary - the agencies that auction and manage government debt - sits close to the perfect market extreme. In the United States, this body is the Department of Treasury's Bureau of Public Debt (BPD); in Australia it is the Australian Office of Financial Management (AOFM).

The AOFM is the almost invisible hand which – via competitive tender – turns savings into socially productive financial instruments. In May 2010, the total face value of Commonwealth Government Securities on issue was AU\$143.5 billion; the process of creating and auctioning these financial instruments employs around thirty five staff.ⁱ A simple stock measure of labor productivity produces a figure of over AU\$4 billion per AOFM worker.

The BPD employs less than 2000 people and performs a similar and equally inaudible role.ⁱⁱ Each year, these BPD “Bureausian” auctioneers issue US\$4.7 trillion in marketable securities and US\$4.8 trillion in non-marketable securities (including US\$195 billion in savings bonds). A simple flow measure suggests labor productivity at about US\$5 billion per BPD worker.

This BPD/AOFM savings-into-capital model provides a method of *supplementing* existing intermediary flows - either through an existing agency (e.g. the BPD) or through a new but parallel agency: a Bureau of Public Savings (BPS).

This Bureausian stabilization model combines four mechanisms. First, the introduction of a Consumed Income Tax Structure (CITS) to raise the level of household savings; second the collection of these pre-tax savings through Individual Savings Accounts (ISA); third the sweeping of these ISA deposits into National Savings Bonds (NSB); and fourth the auctioning of these NSB for specific private capital formation purposes: Gross Fixed Capital Formation (GFCF). This CITS-ISA-NSB-GFCF Bureausian channel can *supplement* existing intermediation flows.

Adding a new savings-into-capital flow does not necessarily disrupt existing capital markets;ⁱⁱⁱ but can help mitigate the *consequences* of financial crises. The business cycle would not be eliminated (export income, for example, would still fluctuate); but the macroeconomic impact of financial crises would be less severe and macroeconomic volatility should be reduced. Monetary policy would be liberated to focus on a single mandate: price inflation.

Human capital is probably the most socially valuable member of the capital family. However, for the sake of illustrative simplicity this paper will focus on GFCF. Fluctuations in GFCF are important in the generation and propagation of business cycles; an uninterrupted flow of savings into GFCF would help tame the business cycle. Equally, such expenditures are easy to track: the tax code clearly defines these items. If this second savings-into-capital flow holds water, then a third (and a fourth and a fifth) flow can be considered.^{iv}

The U.S. public sector employs about 2000 BPD employees to transform savings-into-capital. If the U.S. private sector required four US\$1 trillion per annum savings-into-capital flows (GFCF, human capital, residential capital, all other categories) and a similar auction mechanism could be established, fundamental intermediation would require the employment of four groups of 200 Bureausian auctioneers.

Information gathering (before the auction), administering the loans (after the auction was won) and regulatory supervision would require the employment of a few thousand more people. Such a re-engineered financial system is as small (as close to the Walrasian general equilibrium perfect world) as conceivably possible; its ability to inflict macroeconomic externalities would be eliminated.

Banks would, of course, have an incentive to collude and monopsonist-rig the auction. It is therefore essential that the regulatory authorities stand ready to charter new auction-bidding entrants. If 1% of national income were (pre-tax) saved and auctioned each month, and colluding cartel members were outbid by new entrants, businesses requiring GFCF funds would have an incentive to desert the colluders in subsequent months.

This CITS-ISA-NSB-GFCF Bureausian model is embedded in ten sequential steps (or commandments). Only steps five to eight are structural (essential for the proposal to work); the first four and the final two are desirable but not essential (see Leeson 2010). These six system-specific-steps are not structural).

Four optional characteristics

First, income taxes should be abolished and replaced by CITS. All other expenditure taxes – collected at the point of purchase – could either be abolished or retained.^v

Second, a tax structure becomes a tax *system* by specifying rates: this system is assumed to be progressive. This enables policy makers to manipulate marginal CITS rates so as to achieve a target pre-tax household savings rate:

1. $S = S^*$ (= S% of national income per annum).

Current forced ‘savings’ (social security taxes) are inadequate to meet future liabilities: S^* would presumably be chosen to avoid these future unfunded liabilities. Alternatively, spiraling future tax burdens plus unfunded liabilities could be the “pay any price, bear any burden” of not interfering with free market outcomes: S% could emerge target-less.

Third, the level of government expenditure (G) has been designed according to rational principles:

2. $G = G^*$.

Fourth, marginal tax rates also target a balanced budget:

3. $G = G^* = T$.

Four structural features

Fifth, the pre-tax S^* is collected through ISA. Some - or all - of these pre-tax ISA should be accessible at any time to the depositor (subject to withholding tax).

Sixth, the ISA deposits are “swept” into an NSB pool administered by an apolitical body such as a Bureau of Public Savings (BPS).

Seventh, this BPS should auction these NSB to financial intermediaries through price competition (the interest rate bid).

Eight, winning auction bidders would be rules-constrained with respect to *use* of these pre-tax household savings: every dollar must be loaned for GFCF purposes, or returned (maybe at a penalty rate of interest).

Two further optional steps

Ninth, ISA depositors could receive a capital guarantee, a nominal interest or a purchasing power guarantee.

Tenth, securitization of these NSB loans could be prohibited.

2. Current reform options

The global financial crisis has generated a plethora of reform proposals: some to increase the regulation of what is, in essence, a regulation-avoidance industry; some to “Tobin Tax” financial transactions; some to “Minsky Tax” finance sector salaries to compensate the non-financial sector for the bank-induced recessions.^{vi}

Some International Monetary Fund (IMF) economists propose to use monetary chemotherapy to tackle bubbles; central banks, they argue, should move beyond price stability and the business cycle and - in a discretionary fashion - lean against credit market cycles (Fatas, Kannan, Rabanal Scott 2009).^{vii}

So far, the IMF triple mandate approach has not gained traction: Alan Greenspan,^{viii} Ben Bernanke^{ix} and others are commendably cautious about using monetary policy to target or influence speculative bubbles. Policy makers are an instrument short: we need a fiscal tool which would re-engineer the financial system.

3. The use of savings

The case for replacing the income tax with CITS has a long and distinguished history. Nearly all countries have tax-privileged savings accounts (the beginning of the process of transforming income tax into CITS). One country, Singapore, has gone (almost) six steps along the path towards an auctioning BPS: they have combined CITS with the central collection of savings, via the Central Provident Fund (CPF). But Singapore has not taken the seventh step: their CPF allows some pre-tax funds (subject to caps) to be invested in specific existing (as opposed to newly created) assets (shares, gold, bonds etc).

There are seven main (overlapping) categories of household savings: pre- or post-tax; voluntary or compulsory; general, retirement or special purpose (medical expenses, for example). With respect to the *use* of these funds there are three main categories: financing national debt;^x purchasing new capital assets (via, for example, Initial Public Offerings);^{xi} and purchasing existing assets.^{xii}

Individually, savers have insufficient reason to be concerned with social consequences of their personal savings; but collectively savers have every reason to see community savings transformed into new socially productive capital. The higher the social return, the higher the economy’s productivity and the higher are future consumption opportunities.

The CITS literature has not adequately addressed the *use* of savings. Previously, pre-tax savings were referred to as “Qualified Accounts” (*Blueprints for Basic Tax Reform* 1977, 114) and “registered” as opposed to “unregistered assets” (*Structure and Reform of Direct Taxation* 1978, 175). It was envisioned that these accounts would be left in the hands of financial intermediaries. Whilst one objective of CITS (increasing personal savings and thus reducing

future state pension liabilities) was being addressed, little (if any) thought was given to the social use of these savings.

John Stuart Mill (1884, 179), for example, stated that “all savings, speaking generally, are invested”. Yet when financial intermediaries hoard savings to preserve their own balance sheets, savings are not necessarily lent for capital-formation purposes. Moreover, when savings are used to purchase existing assets, this may marginally add to liquidity but does not directly add to the stock of productive capital.

Referring to his version of the *Expenditure Tax*, Nicholas Kaldor (1955, 11) noted that “the full implications of the case were unknown to the economist of an earlier generation.” Since then, financial engineering has multiplied the opportunities for crises. This paper extends the CITS literature by addressing the issue of the use of household pre-tax savings.

4. Toxicity: an engineering analogy

In the nineteenth century, the U.S. suffered both cholera and financial epidemics: victims of the former are thought to include the 11th and 12th Presidents (Zachary Taylor and James Polk), the daughter of the 13th (Millard Fillmore) and the mother of the 7th (Andrew Jackson). Cholera also hit the United Kingdom (1831-32, 1848-49 and 1853-54).

For the previous two thousand years or so, there was a consensus belief in the “miasma” (in Latin *nebula*) – the bad air theory of disease. In the nineteenth century this was replaced by the germ theory of disease (viruses and bacteria). Scientists of an emerging discipline (epidemiology) discovered the presence of a “toxic” substance (sewage) in the water supply.

In the 1870s, cholera and yellow fever epidemics caused 10,000 deaths in Memphis, Tennessee. An engineer (George Waring) was commissioned to design a separate sanitary sewage collection system, thus ending the era of Memphis cholera epidemics.^{xiii}

Edwin Chadwick’s (1842) *Inquiry into the Sanitary Conditions of the Labouring Population of Great Britain* concluded that “high prosperity in respect to employment and wages, and various and abundant food” offered no protection “from attacks of epidemic disease, which have been as frequent and as fatal in periods of commercial and manufacturing prosperity as in any others”. Chadwick calculated the private and social costs of tolerating the presence of these toxic substances. His solution was simple: “where the removal of the noxious agencies appears to be complete, such disease almost entirely disappears”.^{xiv} In 1859, the chief engineer of London’s Metropolitan Board of Works (Joseph Bazalgette), created a sewer network for central London, thus ending the era of London cholera epidemics.^{xv}

From an epidemiology perspective, tobacco became the cholera of the twentieth century. Such is the grip that the financial sector exerts, that even those who devote their professional lives to public health - and anti-tobacco campaigns in particular - require a journalist from the *New York*

Times to discover that a significant proportion of their savings have been invested in Altria, owner of cigarette supplier, Philip Morris.^{xvi} Sometimes there can be a dramatic disjoint between the (socially valuable) work of a person and the (socially dubious) work of their savings.

Sewage employs no lobbyist; unlike rats, sewage cannot use intelligence to circumvent restrictions. In the nineteenth century, simple public health re-engineering began to eliminate cholera from developed countries. Despite lobbyists and the self-interested intelligence of the regulation-avoidance industry, in the twenty-first century, simple financial re-engineering can separate pre- from post-tax savings. A clean channel – unpolluted by toxic substances – can transform these pre-tax savings into socially productive capital.

This engineering solution would eliminate the “for what” discretion that intermediaries currently enjoy (they would not be allowed the discretion to use pre-tax household savings to bolster their capital adequacy, buy bonds or hoard for precautionary purposes). They would, however, retain the “to whom” discretion they currently exercise (this would eliminate the fear of politically-driven capital allocation).

5. Step five: Individual Savings Accounts

The proportion of national income that is saved ($S\%$ or S^*) as a result of the CITS incentives should be deposited into ISA. These ISA could be the pre-tax equivalent of post-tax bank deposits (they could be collected by banks and thus backed by Federal Deposit Insurance Corporation insurance); or pre-tax payroll deductions (a Singapore Central Provident Fund type arrangement). These ISA deposits could be voluntary (driven by tax-minimization concerns); or compulsory.

Blueprints for Basic Tax Reform (1977, 120) proposed that withdrawals from pre-tax savings accounts should be added to taxable income in the year of withdrawal. Alternatively these withdrawals could be taxed at a preferential rate (a declining function of the time of the deposit, for example, five percentage points per year, thus eliminating all tax liability after twenty years).

Likewise, these ISA could be split into two distinct areas with two different accessibility criteria: ISA (retirement), with generally no access until age 55 or older) plus ISA (general), with access at any time subject to a provisional CITS withholding.

6. Step six: ISA deposits swept into National Savings Bonds

There is a long history of the central collection of savings (often initially associated with the funding of government debt). The first Post Office Savings Bank was established by the British government in 1861. The (now) renamed National Savings and Investment currently manages 9% of the household national savings market and funds about 16% of the national debt. (U.K. residents are also able to invest in tax-privileged Individual Savings Accounts). Japan Post once

held 25% of household assets (possibly the largest holder of personal savings in the world) and about one-fifth of national debt.

The Banker's Panic of 1907 encouraged the establishment of the U.S. Postal Savings System (1911-1967). Deposits reached a peak in 1947 (almost \$3.4 billion) with more than 4 million depositors (reputedly, the country's largest single savings bank).^{xvii}

Canada Savings Bonds (backed by the Bank of Canada) are purchasable via payroll deduction' two-thirds of Canadians report that their first investment was a CSB.^{xviii} Canadians are also able to save via tax-privileged Registered Retirement Savings Plans.

In 1945, the Commonwealth Savings Bank (then the central bank of Australia) and the state savings banks held almost half of total deposits (Schedvin 1992). Since 1992, Australia has had a compulsory superannuation savings scheme (initially 3% of ordinary time earnings, raised to 9% in 2002, projected to rise to 12%).

Singapore has perhaps gone furthest with the central collection of savings. In 1877, the British government established a Post Office Savings Bank (by 1951, the bank had served 100,000 depositors). In 1955, the newly-independent Singapore government established the Central Provident Fund (CPF). Currently, 34.5% of pre-tax private sector wages (for workers aged below 50) are – on a compulsory basis - channeled into three CPF accounts on a prescribed proportion basis: Ordinary (home purchase, investment and education) 55.09%, Special (retirement) 20.28% and Medisave (medical) 24.63%.^{xix} India, Malaysia, Hong Kong also have similar Provident Funds.

7. Step seven: auctioned price competition

Before the 1970s (with two exceptions, 1935 and 1963), the U.S. government financed federal deficits through fixed price offerings. Milton Friedman (1960, 65) objected that the terms of an offering were “crystal ball gazing ... and plain guesswork”. If market demand was underestimated, the offering would fail through under-subscription; an oversubscribed offering would give yield away at taxpayer expense. Any added premium (to avoid an under-subscription) compounded the error, allowing subscribers to “free ride” by rapidly and profitably re-selling their allotment.

An alternative auction process was experimented with and by 1972, Paul Volcker (Treasury Under Secretary for Monetary Affairs) declared that this “striking innovation” in debt management had “met or surpassed every expectation so far, to the advantage of the Treasury and the market” (cited by Garbade 2004, 36). By 1976, the auction revolution had triumphed (allocating, at least in principle, further independence to monetary policy).^{xx}

In Walrasian tâtonnement, a mythical auctioneer cries out a price, suppliers and demanders display their curves (register how much they would like to supply or demand at that price) and a

fresh price is cried out until equilibrium is achieved. No transactions take place at prices other than those which would clear the market (no disequilibrium prices).

The Bureauasian auctioneer can engage in price discrimination so as to maximize returns. On the demand side of the NSB market, each intending intermediary would (presumably) be in direct or indirect contact with a multitude of business capital decision-makers (those whose behavior is captured by the demand for GFCF funds). The demand for such GFCF funds is (presumably) primarily determined by the cost (the interest rate charged) and the expected return (projected sales, business confidence, animal spirits etc).

Consider a simple numerical example. An intermediary has two groups of 50 eligible customers each of whom has calculated that at a given fixed nominal interest rate they could profitably use a 10 year GFCF loan of \$100,000. The first group is low risk (e.g. AAA credit rating) and interest rate is $(X+R)\%$ where R = a risk premium (to cover the possibility of a loan becoming non-performing). The second group is higher risk and the interest rate is therefore $(X+2R)\%$. The intermediary would then calculate F (where F = the cost of financial intermediation, including the expectation of non-performing loans and returns) and then tender for \$10 million worth of NSB at $(X-F)\%$.

If $F=0.5\%$ and $X=5.5\%$ then the bid would be made at 5%. If successful, the intermediary would sign a contract to borrow \$10 million. The contract would specify that this intermediary would repay 5% each year, plus the capital either in periodic payments or at the end of 10 years (depending on the type of contract).

Since new entrants to the intermediation market would not require a deposit base, nor elaborate retail operations, the cost of intermediation ($F\%$) would be competed down (an efficiency gain).

The interest rate (return on the NSB) would be $(X-F)$: the “enterprise” interest rate. If the real enterprise interest rate is positive, this would generate additional revenue that would be available to further compensate the pre-tax saver over and above the tax avoided.

8. Step eight: rules-based lending

Banks should be rules-constrained with respect to the use of pre-tax household savings. These auctioned dollars would be won on a contractual basis: every dollar must be loaned for GFCF purposes, or returned (maybe at a penalty rate of interest).

Banks are currently the beneficiaries of a large amount of discretion: when they take deposits they are generally under no obligation to loan these funds for any particular purpose.^{xxi} Indeed, in times of financial crisis, they sometimes choose to barely lend at all (thus further exacerbating the crisis). Rule-constrained lending behavior can remove this discretion whilst avoiding the political allocation of capital (to cronies, party members etc).

The NSB contract should guarantee that every dollar won at auction is loaned for GFCF purposes (or returned). This category should include GFCF items codified by the taxation office for deductibility purposes (building, plant and structures, equipment and machinery etc).^{xxii} The relevant regulatory/supervisory authority would be responsible for auditing to ensuring that this criterion was met.

9. Step nine: the return to ISA depositors

These ISA deposits could be either (a) capital guaranteed, (b) earn an “enterprise” rate of interest in line with the performance of the real (GFCF) economy (the average yield of the NSB auctioned each period) or (c) purchasing power guaranteed.^{xxiii} The capital guarantee (a) might misalign incentives (the government would gain revenue from inflation) and the full “enterprise” rate (b) may be confusing to less sophisticated savers.^{xxiv}

The savings public is familiar with post-tax purchasing-power guarantees (Treasury Inflation Protected Securities) and therefore the third option (c) may be optimal.

10. Step ten: no securitization

To avoid incentive incompatibility issues, securitization of these NSB loans could be prohibited. It would, therefore, not be possible for intermediaries to hedge their risks by transforming potentially non-performing assets into a potentially non-performing macroeconomy (as happened in September 2008).^{xxv}

Incentive compatibility is introduced by obliging the intermediary to carry the default risk of each individual GFCF loan. Risk management will determine the spread over the interest rate bid to cover for non-performing loans. Financial intermediaries would presumably cover their costs (including a margin for non-performing loans) by charging their customers (the GFCF borrowers) a spread over the interest rate bid (F%).

11. Implications for stabilization policy: a single mandate

The nominal interest rate would be fixed for the duration of the GFCF loan. So long as central banks continue to hit low and stable inflation targets or zones, the real interest rate would also be fairly stable. This type of predictability would remove one element of uncertainty from the GFCF decision-making process.

The Singaporean government uses discretionary variations in CPF employer contribution rates to fine-tune the economy. The CITS-ISA-NSB-GFCF structure goes further – by providing an automatic market-based stabilization mechanism.

Compulsory savings appeals to some countries (e.g. Singapore and Australia) and not to others (e.g. the U.S.). Either system is compatible with a target of S^* of national income (both are equally compatible with non-targeted savings outcomes).

Any compulsory ISA component would be a function of income. If ISA were purchasing-power-guaranteed, voluntary ISA additions would be determined by the interaction of individual preferences with respect to the preferred time profile of consumption and external incentives (CITS rates).

With a purchasing-power-guarantee, household pre-tax savings would be determined by marginal tax rates and would thus be perfectly inelastic with respect to the interest rate. The supply of CITS-ISA-NSB-GFCF funds would therefore become a vertical line (invariant with respect to the interest rate).

The location (horizontal intercept) of the supply of these funds would thus be determined by marginal CITS rates. Any instability in the demand for these funds (investment demand volatility driven by ‘animal spirits’ etc) would result in variations in the interest rate - not in the *volume* of NSB funds applied to GFCF:

$$4. \text{ GFCF} = S^*$$

Consider three demand curves for CITS-ISA-NSB-GFCF funds: bull, bear and depression.^{xxvi} The bull demand curve would (most likely) generate a positive real enterprise interest rate. With an ISA purchasing-power-guarantee, this real return generates tax revenue.

With a bear demand curve, the real enterprise interest rate may be zero: no tax revenue derived. With a depression demand curve, it is possible that the real enterprise interest rate may be negative (although the supply of funds might fall as national income fell, counteracting this negative tendency). This would require an investment-tax-credit-style subsidy: a more appropriate automatic stabilizing response than a temporary tax cut to consumers.

More fundamentally, this GFCF enterprise interest rate would be determined by fiscal, not monetary, policy. Central banks would be provided with a benchmark interest rate – over which they would have no control. The federal funds rate would cease to be the benchmark rate; the discount rate would always have to be above the enterprise rate.

Federal Reserve chair William McChesney Martin suggested that a central bank’s job was “to take away the punch bowl just as the party gets going.”^{xxvii} The CITS-ISA-NSB-GFCF nexus removes the monetary punch bowl from the GFCF enterprise sector of the economy. Businesses may still receive funding from post-tax dollars (by issuing stock and bonds and taking on short term loans etc) but the flow of savings-into-GFCF via the CITS-ISA-NSB nexus would be uninterrupted - regardless of the market for these post-tax funds.

The consumption/savings decision can be expected to be fairly stable and largely determined by income and the tax system:

$$5. Y - S = (C + T)$$

GFCF can be expected to be a stable function of income (plus whatever GFCF is made with borrowed post-tax savings). What post-tax interest-sensitive expenditures would monetary policy have residual potency over? Investment derived from post-tax savings? Imports? Exports?

The Federal Reserve was blamed for causing the Great Depression, or Great Contraction (Friedman and Schwartz 1963). The current chairman of the Fed concurs: “The ‘antispeculative’ policy tightening of 1928-29” was a crucial error, adding – as a comment to Friedman and Anna Schwartz - “Regarding the Great Depression. You're right, we did it. We're very sorry. But thanks to you, we won't do it again” (Bernanke 2002).

The CITS-ISA-NSB-GFCF structure disburdens central banks of the responsibility that has caused so much macroeconomic dislocation and controversy. Liberated from the burden of targeting unemployment or the business cycle (which would be largely determined in the “enterprise” sector), they could, instead, focus on a single mandate: inflation targeting. Presumably this would require discretionary leaning against the inflationary winds by influencing general monetary conditions (overnight inter-bank rates, the quantity of circulating second hand bonds etc).

Many economists objected to the use of monetary policy to influence the current account balance: the CITS-ISA-NSB-GFCF nexus provides an alternative policy tool. In so far as the increase in the domestic sources of savings (CITS-ISA-NSB-GFCF) replaces foreign sources, the interest payment component of the current account balance (net factor income from abroad) would ‘improve’. Interest payments would accrue to domestic residents (ISA deposit holders and taxpayers) rather than to overseas residents. If the CITS-ISA-NSB-GFCF nexus increased capital per worker and thus productivity in the export and import competing sectors, this too would tend to improve the trade balance.

Internationally, interest rates often markedly diverge as individual countries tackle their own domestic problems. As a result, hot international money flows seek to benefit from these interest differentials. With the primary GFCF interest rate – the “enterprise” rate - determined by the interaction of the marginal productivity of GFCF and the supply of savings (NSB), the residual (central bank influenced) interest rate would become less important as a policy tool.

With central banks solely concerned with price inflation control (with employment and growth largely determined in the “enterprise” sector) interest rates would have less work to do. Therefore exchange rate volatility (at least that component driven by hot money flows) may be reduced.

12. Shrinking the financial sector

In the U.S., the financial sector’s share of aggregate income has risen from 2.5% of Gross Domestic Product in 1947 to almost 8% of GDP in 2006 (Phillipon 2008). In 2006, almost 3

million people were employed in “credit intermediation and related activities” out of a total employment figure of just over 150 million (U.S. National Employment Matrix).

If the BPS auctioneers were as productive with savings-into-private-sector-capital flows as their BPD counterparts, and if the U.S. private sector required four US\$1 trillion per annum savings-into-capital flows (GFCF, human capital, residential capital, all other categories) fundamental intermediation might require the employment of less than 1000 auctioneers (making a total of less than 3000 for the combined BPD-BPS nexus).

In addition, every chartered intermediary auction bidder would need to employ a handful of information gatherers (before the auction), some risk management experts (to calculate the risk premium to charge) plus some administrators to monitor the loans. The authorities would also need to employ regulators to oversee the process.

The post-tax savings market would also need to market their products and to employ lobbyists, public relations consultants and lawyers (to advise how to evade regulation). It is unlikely that this would require 3 million workers.

The CIT-ISA-NSB-GFCF nexus would attract new low cost entrants; companies with extensive business connections (firms of accountants perhaps) might also create subsidiaries to auction for NSB funds.^{xxviii} The CIT-ISA-NSB-GFCF structure would tend to shrink the financial sector by draining away deposits and reduce the per-unit cost of financial intermediation: an unambiguous productivity gain. Reducing the spread between the interest rate paid on savings and the interest rate charged to borrowers would also produce unambiguous benefits.

Electronic commercial ‘intermediation’ has creatively destroyed the old newspaper model and created new channels of commerce; and micro-financing is advancing from third world countries into the U.S. and may radically change (and squeeze) financial intermediation.^{xxix} In less technologically advanced times, financial intermediaries could argue that their services justified their large share of national income. Until recently, making deposits and obtaining cash usually required a visit to a bank (this, therefore, required an expensive high street presence).^{xxx}

But technology has transformed financial intermediation: cash is now available via machines and banks and customers shift funds and checks electronically. This allows competition from intermediaries with less expensive infrastructures.

The details of financial innovation are, almost by definition, impossible to accurately predict. But under CITS, earning income ceases to be a taxable event. Employers could offer bank-like services: the presence of a withholding tax provides an incentive to delay the receipt of income. That component of labor income that was not required for immediate consumption could be swept by the employer into an employees’ ISA; the ISA purchasing-power-guarantee preserves the real value of these pre-tax funds.

The financial sector is a magnet for scarce capital (skilled labor, shop front real estate plus resources held as insurance against risk-weighted assets). The sector also drains talent into socially dubious activities: such as discovering ways to financially engineer ways around regulations.

There is some arbitrage value in having some entrepreneurial talent focused on second hand financial assets; there is also value in having entrepreneurial effort directed at invention, innovation and production. Having a benchmark return (purchasing-power-protected pre-tax savings) against which to judge the “beating the market” (playing the second hand asset market) might redirect effort away from the former into the latter category.

Keynes’ (1936) system of permanently lower interest rates created victims or losers: “it would mean the euthanasia of the rentier, and, consequently, the euthanasia of the cumulative oppressive power of the capitalist to exploit the scarcity-value of capital”.^{xxxi} The CITS-ISA-NSB-GFCF structure would reduce the size of the financial sector and produce a sounder structure at lower cost. It would also limit the cumulative oppressive power of the financial sector.

In the short run, many financial sector jobs would be creatively destroyed (euthanized) - but structural efficiency requires that lower-valued jobs be replaced by higher-value employment opportunities. Many of these skilled and semi-skilled workers would be released to work in less bubble-prone sectors. Shrinking the financial sector would also mitigating the “too big to fail” problem.

14. Conclusion

Prior to the global financial crisis, Alan Greenspan (2002a, 5) asked: “is there some policy that can at least limit the size of the bubble and, hence, its destructive fallout? From the evidence to date, the answer appears to be no”. Later, Greenspan again asserted that “No sensible policy ... could have prevented the housing bubble” (cited by Ip 2008).

In the Walrasian system, equilibrium may be achieved through *tatâtonement*, a form of hill climbing. Likewise, post-tax dollars may continue to chase second hand assets up bubble hills until deprived of air. But decoupling pre-tax savings-into-capital from post-tax credit crunches can localize the destructive fallout on the macroeconomy. This re-engineered Bureausian financial system may be as small - as close to its Walrasian counterpart - as conceivably possible.

Increased regulation may - or may not - remove some of the toxic elements associated with post-tax savings flows: it will change the products but not the incentives of the regulation-avoidance industry. In contrast, the CITS-ISA-NSB-GFCF structure offers benefits in terms of increasing capital per worker, productivity, real wages and consumption-savings opportunities. The productivity of financial intermediation could be radically increased (better quality outputs at

lower cost). In the process, “systemic” institutions (those whose failure would threaten financial system stability) would be relocated into the non-systemic category.

An uninterrupted flow from savings-into-capital would help insulate the economy from crises originating in the financial sector. Even as an emergency anti-recession measure, this CITS-ISA-NSB-GFCF structure outperforms temporary tax-cut-consumption-subsidies. If the average ISA depositor saved 20¢ in tax for every dollar saved and the loss of tax revenue was 2 per cent of GDP, this would produce a capital fund of 10 per cent of GDP: a fivefold bang per buck.

The logic of this model is unassailable: CITS *can* increase household savings (thus helping to alleviate future unfunded tax liabilities); this new source of household savings *can* be centrally collected and auctioned to financial intermediaries on a contractual dollar-for-dollar basis; GFCF *can* be funded via an uninterrupted channel in which animal spirits affect the interest rate but not the volume of capital; the macroeconomy *can* thus at least partly be insulated from credit crunches.

Whether it *will* or not depends on the lobbying power of the financial sector and our collective determination to reduce the macroeconomic externalities emanating from the financial sector.

BIBLIOGRAPHY

Bernanke, B. 2002. On Milton Friedman's Ninetieth Birthday. At the Conference to Honor Milton Friedman, University of Chicago, Chicago, Illinois November 8, 2002.

Benanke, B. and Gertler, M. 2001. Should central banks respond to movements in asset prices? American Economic Review May 253-257.

Fatas, A., Kannan, P., Rabanal, P., and Scott, A. 2009. Lessons from Asset Price Fluctuations for Monetary Policy. World Economic Outlook. IMF

Friedman, M. 1960. A Program for Monetary Stability. New York: Fordham University Press.

Friedman, F and Schwartz, A. 1963. A Monetary History of the United States.

Garbade, K.D. 2004. The Institutionalization of Treasury Note and Bond Issue. Economic Policy Review May 10.1:

Greenspan, A. 2002a. Economic Volatility. Rethinking Stabilization Policy A symposium sponsored by the Federal Reserve Bank of Kansas City Jackson Hole, Wyoming August 29 - 31, 2002.

Greenspan, A. 2002b. Opening remarks. Rethinking Stabilization Policy A symposium sponsored by the Federal Reserve Bank of Kansas City Jackson Hole, Wyoming August 29 - 31, 2002.

Greenspan, A. 2005a Receipt of the Truman Medal for Economic Policy. Before the Truman Medal Award and Economics Conference, Kansas City, Missouri October 26, 2005.

Greenspan, A. 2005b. Stability and Economic Growth: The Role of the Central Bank. Banco de Mexico's 80th Anniversary International Conference, Mexico City (via videoconference) November 14, 2005

Institute of Fiscal Studies. 1978. The Structure and Reform of Direct Taxation. London: Institute of Fiscal Studies. George Allen and Unwin.

Ip, G. 2008. His Legacy Tarnished, Greenspan Goes on Defensive. Wall Street Journal April 8.

Kaldor, N. 1955. An Expenditure Tax. London: George Allen and Unwin.

Keynes, J.M. 1936. The General Theory of Employment, Interest and Money. London: Macmillan.

Leeson, R. 2010. The Case for the Consumed Income Tax. Mimeo.

Mill, J. S. 1884. Principles of Political Economy with some of their Applications to Social Philosophy. London: Parker, Son and Bourne.

Philippon, T. 2008. The Evolution of the US Financial Industry from 1860 to 2007: Theory and Evidence. New York University, NBER, CEPR November.

Schedvin, C.B. 1992. In Reserve: Central Banking in Australia, 1945-75. Allen and Unwin.

U.S. Treasury. 1977. Blueprints for Basic Tax Reform.

<http://www.ustreas.gov/offices/tax-policy/library/blueprints/>

Wilson, D. 2010a. University Chief Is Selling Tobacco Holdings. New York Times June 28.

Wilson, D. 2010b. Chancellor's Slip Benefits Tobacco Research. New York Times June 30.

NOTES

ⁱ They apparently do a good job: according to their web site, in January 2009, the AOFM was awarded the Sovereign Risk Manager of the Year award by the London-based *Risk* magazine.

ⁱⁱ "You haven't heard of the Bureau of the Public Debt before?" <http://www.publicdebt.treas.gov/>.

ⁱⁱⁱ For example, in 1992, Australia introduced a new savings-into-capital flow (a compulsory superannuation savings scheme, 3% of ordinary time earnings), extended it in 2002 (9% of ordinary time earnings); there are plans to extend it further (to 12% of ordinary time earnings).

^{iv} Emphasizing the *domestic* GFCF class does not, of course, reduce the importance of international capital flows (which can still be accessed by intermediaries via channels that already exist).

^v If sales taxes were abolished, the price level should fall and the real wages should rise. If the abolished sales tax was 10%, in principle, the purchasing power of wages would be unchanged if (approximately) 10% of income was channeled into a compulsory pre-tax savings scheme (ISA). Alternatively, the increase in purchasing power could allow an individual to decide how much to save and how much to consume (given the incentives provided by CITS).

^{vi} More radically, some have proposed to seize the houses, boats and cars of all of those whose fingerprints can be found on toxic assets (the proceeds of crime approach).

^{vii} William Dudley, the President of the New York Federal Reserve, has also expressed a similar judgment. Greenspan (2002b) opposed this strategy but failed to see how other policies could work: “If low-cost, incremental policy tightening appears incapable of deflating bubbles, do other options exist that can at least effectively limit the size of bubbles without doing substantial damage in the process? To date, we have not been able to identify such policies, though perhaps we or others may do so in the future”.

^{viii} Greenspan (March 5, 1997) concluded that “We don’t view monetary policy as a tool to prick the stock market bubble.” Bubbles, Greenspan (2002) argued, were an immutable force of nature and could only be mopped up after the burst: “Such data suggest that nothing short of a sharp increase in short-term rates that engenders a significant economic retrenchment is sufficient to check a nascent bubble. The notion that a well-timed incremental tightening could have been calibrated to prevent the late 1990s bubble is almost surely an illusion. Instead, we noted in the previously cited mid-1999 congressional testimony the need to focus on policies ‘to mitigate the fallout when it occurs and, hopefully, ease the transition to the next expansion’. It seems reasonable to generalize from our recent experience that no low-risk, low-cost, incremental monetary tightening exists that can reliably deflate a bubble”.

^{ix} Ben Benanke and Mark Gertler (2001, 253) concluded that “inflation targeting central banks need not respond to asset prices, except in so far as they affect the inflation forecast”.

^x These savings are effectively bundled together to purchase new financial assets – government bonds.

^{xi} The fees associated with one type of savings-into-capital flow – Initial Public Offerings (IPOs) – can be as high as 8%. IPOs are almost invariably underpriced by underwriters – the price of an IPO has been known to rise by 1000% in the first day of trading. Thus borrowers sometimes

leaves hundreds of millions of dollars “on the table” to be consumed by intermediaries and the exclusive circle of those who are invited to participate in IPOs.

^{xii} With or without individual choice with respect to the specific assets purchased.

^{xiii} Waring oversaw the construction of New York's Central Park and was later appointed New York Commissioner of Streets.

^{xiv} <http://www.victorianweb.org/history/chadwick2.html>

^{xv} In 1834, a painter (John Martin) drew plans for a sewerage system for London.

^{xvi} The University of California, San Francisco, has four Nobel Laureates (Medicine) on its faculty and is justly famous for the contribution made to world health in general and for its Center for Tobacco Control Research and Education (which has repeatedly highlighted the role that Altria's products have played in tobacco-related deaths). The UCSF chancellor is presumably committed to tobacco control, but in 2010 it was revealed that a significant proportion of her personal savings have been invested in Altria. When alerted by the *New York Times*, the chancellor sold her Altria stock and donated the proceeds (US\$134,000) to the Center for Tobacco Control Research and Education (Wilson 2010a and b).

<http://www.nytimes.com/2010/06/29/health/29altria.html?scp=1&sq=Susan%20Desmond-Hellmann&st=cse>.

http://www.nytimes.com/2010/07/01/health/01altria.html?_r=1&scp=1&sq=UCSF%20tobacco&st=cse.

^{xvii} Historian, U.S. Postal system.

http://www.usps.com/postalhistory/_pdf/PostalSavingsSystem.pdf

^{xviii} Canada Savings Bonds An Old Standby Faces New Challenges CBC News October 3 2007

<http://www.cbc.ca/news/background/canada-savings-bonds/>

^{xix} The compulsory savings proportion is lower for government pensionable employees and for those over 50.

^{xx} From December 1979, Australian Treasury Notes and from July 1982, Australian Treasury Bonds, have been offered by tender (Schedvin 1992, 548).

^{xxi} One quasi-exception is the 1977 U.S. Community Reinvestment Act.

^{xxii} It would also be possible to categorize certain types of ‘capital’ as specifically non-fundable: for example bubble-prone Central Business District office block purchase, mergers and acquisitions etc.

^{xxiii} Singaporean CPF account balances earn government-guaranteed interest rates (currently 2.5%).

^{xxiv} The receipt of such an interest payment might violate the Koran and thus cause unnecessary problems.

^{xxv} In October 12, 2005, referring to “financial products, such as asset-backed securities, collateral loan obligations, and credit default swaps, that facilitate the dispersion of risk”, Greenspan assured the National Association for Business Economics that “These increasingly complex financial instruments have contributed to the development of a far more flexible, efficient, and hence resilient financial system than the one that existed just a quarter-century ago.”

^{xxvi} If the NSB return is $(X-F)\%$ and measured inflation is $P\%$ where $P < (X-F)$, the difference is the real enterprise interest rate $= [(X-F) - P]$. The real enterprise interest rate on NSB is available to reduce the amount of tax that has to be levied on consumed income in order to balance the budget.

^{xxvii} Like his successor (Arthur Burns), Martin was confronted by a President prepared to go to great lengths to achieve a “coordinated” monetary policy that was consistent with short term political considerations. The fiscal cost of President Johnson’s quest for the “Great Society” was supplemented by the cost of the increasing number of US troops deployed to Vietnam (from 3,500 to nearly 200,000 between March and December 1965). Johnson did not want tax or interest rates to rise, or spending to fall. Martin recalled that he warned Johnson about impending inflationary pressures in May 1965 stating that “we can’t wait any longer. We’re going to have to raise the rate”. Johnson replied: “Well give me another chance”. Later, the Council of Economic Advisers chairman, Gardiner Ackley, reflected on the deception associated with these fiscal costs: “There was a period of a couple of months – six weeks maybe – in the summer [of 1965] in which there was I think a deliberate effort not to let anyone know what was going on. But the people in Defense knew it, and the people in Budget and the Council [of Economic Advisers] did not know it”. In November 1965, Ackley sent President Johnson (who was recovering from an operation in Texas) an urgent telegram warning that Martin intended to approve a discount rate rise the following week. Johnson tried to dissuade Martin from exercising any future monetary policy independence: “You took advantage of me [while I was sick]. I just want you to know that I think that’s a despicable thing to do”. Martin regarded Johnson as “one of the greatest liars I have ever known” (cited by Meltzer 2009, 458, 452, 448-9).

^{xxviii} These new entrants would, of course, first have to obtain registration and approval from the relevant supervisory authority.

^{xxix} See, for example, kiva.org.

^{xxx} Also, central banks couriered checks around the country to large processing centers.

^{xxxi} Keynes (1936) did not regard such euthanasia as revolutionary: it “would be quite compatible with some measure of individualism.” Moreover, he saw “the rentier aspect of capitalism as a transitional phase which will disappear when it has done its work. And with the disappearance of its rentier aspect much else in it besides will suffer a sea-change. It will be, moreover, a great advantage of the order of events which I am advocating, that the euthanasia of the rentier, of the functionless investor, will be nothing sudden, merely a gradual but prolonged continuance of what we have seen recently in Great Britain, and will need no revolution”.