Systemic Fragility in the Global Economy: For a New Conceptual Framework & Index

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By Jack Rasmus

The conceptual toolbox of contemporary economic analysis is deficient. Anomalies in the global economy today abound and multiply, with insufficient explanation. Systemic Fragility is offered as an alternative conceptual framework for explaining how real and financial variables mutually determine each other and lead to instability and is the outcome of dynamic interaction within and between three fragility forms – financial, consumption, and government.

One of the shortcomings of contemporary economic analysis is its insufficient understanding of how financial cycles and real cycles interact, how financial variables and real variables mutually determine each other.

For nearly a century, successive generations of economists have been trained to focus predominantly on real variables and to associate economic instability with variances in Gross Domestic Product (GDP) and its underlying real indicators associated with National Income Product Accounts (NIPA). GDP-NIPA (and its equivalent in other countries) has served as the basic conceptual toolbox. Largely missing from that toolbox, however, or at best relegated to secondary importance, are important financial variables that clearly also play a critical role in determining economic instability – both financial and real.

In the US, the GDP-NIPA conceptual framework was developed in its fundamental form in the 1930s and 1940 and contained from the outset specific biases against the inclusion of financial variables. While GDP-NIPA serve as the conceptual focal point for assessing the overall performance of the real macro economy, there exists today no equivalent financial indicator analog to GDP-NIPA that might aggregate financial variables as well; and without such, assessing how financial cycles and real cycles interact and mutually determine each other can only remain an arbitrary and incomplete undertaking.

Anomalies and Limits of GDP-NIPA Conceptual Toolbox

The current GDP-NIPA conceptual framework has become increasingly ineffective in predicting the trajectory of regional and global economies. Employing that framework, global institutions like the IMF, World Bank, by private research consultancies, and by research departments of central banks and governments have consistently failed to predict major financial instability events and the severe, real economic contractions they precipitate and propagate, as well as the historically sub-normal recovery periods that follow. Recovery forecasts have proven consistently over-optimistic and 'behind the curve' of real conditions and events.

Equally disconcerting, major anomalies today continue to appear that are inadequately explained or are even left largely unaddressed by the GDP-NIPA conceptual framewok. Some of the more important of these anomalies include:

• After seven years of near zero central bank interest rates, after trillions of dollars in new corporate debt issuance and more than $30 trillion in equities price appreciation, and after more than a doubling of corporate profits since 2009 – all of which together should have provided ample capital for accelerating investing in real assets – investment in structures, equipment, and other real assets has slowed globally long term, experiencing today yet another slowdown since 2014;

• Corporate cash hoarding has attained historic levels – even after tens of trillions of dollars since 2008 have been diverted to stock buybacks, dividend payouts, sheltered in offshore tax havens, or redirected to financial portfolio investment instead of committed to real asset investment;

• Despite increasing evidence that monetary policies of central banks has little influence on generating real growth, central banks and structural changes in finance have
enabled the injection of liquidity in historically unprecedented magnitudes into the global economy;

• Global total debt levels have surged by $45-$50 trillion since 2007 according to international research institutions, with the majority concentrated in the corporate sector and in particular in China and emerging market corporate debt;

• Notwithstanding tens of trillions of dollars of new liquidity and credit creation, more than $5 trillion in non-performing bank loans still sit on bank balance sheets in the advanced economies of Europe, US-North America, Japan and China, with unknown additional amounts in emerging market economies;

• Despite more than $20 trillion of global central bank liquidity injections since 2007, disinflation and drift into deflation in goods and services prices continue to gain momentum globally;

• Global oil and commodity prices also continue to deflate with no end thus far in sight, with their decline having had virtually no positive effect on household consumption patterns;

• Wage incomes for the majority of the labour force in the advanced economies continue to barely grow, and even decline; both quantity and quality of job creation, average hours worked, and labor force participation in the advanced economies have deteriorated significantly compared to past historical trends;

• Government fiscal and investment multipliers, as well as interest rate elasticities of investment, have weakened, with no clear explanation as to why by mainstream economic analysis;

• Global economic recovery post-2008 has resulted in a recovery equal to only half to two-thirds normal, and well less than half normal when the temporary double digit growth rates of China, 2010-2012 – a consequence of a unique fiscal stimulus of approximately 15% of GDP and an equally massive liquidity injection in China – are adjusted to 2000-2015 averages.

Efforts at explaining these growing anomalies, to the extent that they are even addressed, have proven

unconvincing and incomplete. The failure suggests the conceptual framework of current economic analysis has not evolved sufficiently to account for the fundamental structural changes that have occurred in the global financial system and in labour markets in the 21st century.

New concepts, new frameworks, and new indicators are necessary to address and explain the new anomalies. The concept of Systemic Fragility is offered as an initial contribution to the development of such framework and indicator.

Major Trends Underlying Systemic Fragility

Systemic Fragility is a dynamic condition that is first and foremost the consequence of the interaction of 9 key real factors or trends. The trends are briefly summarised as follows:

A massive increase in money liquidity by central banks has been occurring since the collapse of the Bretton Woods system in 1971-73 – accelerating since the 1980s with the elimination of controls on international capital flows by most countries and the introduction of new digital technologies in the 1990s. In parallel, liquidity in the form of 'inside credit' has been expanding significantly as well, further feeding trends in debt leveraging, securitisation, and the derivatives revolution. Both the 'stock' of total credit and the velocity of credit flows have grown significantly.

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The liquidity explosion has thus enabled the acceleration of overall credit, and consequently therefore debt. That debt has flowed increasingly into financing of financial assets relative to financing of real assets. Liquidity-debt has thus been fueling a relative shift to financial asset investing, diverting money capital from real asset investing into financial asset markets. A dichotomy of investment has occurred which contemporary economic analysis has not sufficiently understood as to its consequences for financial and real instability.

As real asset investment has slowed long run, disinflation and drift toward deflation in real goods and services has gained momentum, while simultaneously inflation of financial asset prices has resulted in financial asset bubbles and busts with growing frequency, as money credit and inside credit rotates between liquid financial asset markets globally.

Restructuring of the global financial system institutions has enabled and incented the relative shift to financial asset investing. Unregulated shadow banking in particular has provided the institutional framework for the shift. Shadow banking has expanded both externally and internally. Shadow banking practices have steadily penetrated the regulated, commercial bank institutions creating 'hybrid' shadow banks; increased in relative weight in non-financial corporate portfolio investing creating 'embedded' shadow banks within non-financial corporations; and assumed emerging new online forms facilitated by internet and other technologies. Shadow banking has also expanded geographically – from initial US-UK regions to Asia, Europe and emerging markets. As a consequence of the new institutional framework and escalating credit availability, new forms of financial instruments have proliferated to absorb the excess liquidity and enable rising securities transactions in proliferating new highly liquid markets. Accompanying the new institutional framework for financial asset investing has been the acceleration of financial asset securitisation, 'super'-leveraging of debt in financial investing, the financialisation of commodities, and general deregulation of financial asset trading. All preceding changes in financial structure and practices have enabled the financial asset investing shift, fueled by the excess credit-debt, in turn enabled by the massive central bank and inside credit liquidity explosion.

As a consequence of financial system restructuring, a new global finance capital elite has arisen as primary agents driving the financial asset investing shift, through their preferred shadow, hybrid shadow, embedded shadow, and online shadow banking institutions. As the new elite enriched themselves disproportionately, contributing significantly to income inequality trends globally, political inequality in their favour has grown in parallel. Government tax cuts and subsidies favouring capital incomes have expanded, contributing in significant part to government deficits and debt. Sub-normal economic growth and repeated bailouts of private sector and government units has added to deficits and government debt.

A **shadow banking** system refers to the financial intermediaries involved in facilitating the creation of credit across the global financial system, but whose members are not subject to regulatory oversight.

In parallel as well, fundamental structural changes in labour markets have accompanied changes in financial markets, compressing wage income gains by non-investing households by multiple means. Households have responded by maintaining consumption patterns by increasing access to credit and therefore debt. Household debt levels have risen as wage income levels stagnated.

Government debt levels have risen as well as a consequence of tax revenue income growth slowing due not only to tax policy changes but due as well to slowing of average economic growth rates, and as bailouts of private sector and local government units have increased in frequency and magnitude since 1980. Rising volatility and instability in financial asset markets since the 1980s has also required cyclical increases in central bank liquidity to stabilise the system, thus adding further to government debt levels as central bank balance sheets have swelled.

The shift to financial investing, globalisation and proliferation of liquid financial markets, expansion of capital markets, volatility in demand for and velocity of money, and other related forces have reduced the elasticities of investment response to interest rate policies of central banks. Slower recovery and growth have further exacerbated government deficits and debt by leading some economies to introduce austerity fiscal policies that induced still slower real growth trends. Rising government deficits and debt, and accumulating debt overhang by households and business, have together reduced the effectiveness of investment and spending multipliers and therefore in turn household consumption and business real investment.

In short, key variables of liquidity injection, debt, shift to financial asset investing, slowdown in real asset investment, disinflation and deflation in goods and services trends, financial system restructuring, labour market restructuring, and declining effectiveness of central bank monetary policy and government fiscal policies on historical multipliers and interest rate elasticities all together constitute the major trends underlying the long run deepening of fragility within the system.

Key Variables and Forms of Fragility

Debt, income and changing terms and conditions of debt repayment (T&C) dynamically interact to raise systemic fragility within three main economic sectors – business financial, household consumption, and government balance sheet. However, systemic fragility is dynamic not only within a given form – i.e. the financial, consumption, and government – but also between them. Not only may the level of fragility grow as real trends raise levels of debt, compress income and change T&Cs for debt servicing within a sector, but the interactions between the three variables within a sector may contribute to the level of fragility as well as a residual factor. Moreover, the feedback effects between the financial, consumption, and government balance sheet forms (sectors) of fragility can further exacerbate fragility on a systemic level by adding to the residual factor.

Fragility is therefore not a linear process, proceeding from one level to the next higher as debt or income or T&C rise and/or fall, respectively. It is a dynamic process, with multiple feedback effects within and between its primary sectors or forms. Systemic fragility expands not simply by adding up levels of fragility that develop *within* financial, household, and government sectors or forms. How fragility between those sectors mutually determines each other and raises (or lowers) fragility at a systemic level is equally important.

This focus on dynamic interactions also requires identifying and explaining the 'transmission mechanisms' within and between the three fragility forms. Some of the more important include the price systems associated with both financial assets and real goods, government policy shifts and changes, as well as the psychological expectations of various agents – in particular the investor-finance capital elite, households as consumers, and government policy makers at central banks, legislatures, and executive institutions.

The dynamic interactions – i.e. the feedback effects enabled by transmission mechanisms – intensify the overall fragility effect. Moreover, the intensity due to interactions or 'feedback effects' varies with the phase and condition of the business cycle.

Fragility is therefore more than just the sum of its three parts. It is a dynamic process and that process has a historical trajectory based on real conditions as well as subjective, psychological expectations of real actor-agents. Because fragility is the product of internal trends and variables, it develops and grows endogenously.

Another important characteristic is that rising systemic fragility renders the global economy more prone to eruptions of financial instability, on the one hand, and further contributes to accelerated contractions of the real economy in the wake of the instability events when they occur. That acceleration leads to a deeper and therefore often longer duration of real contractions.

Debt, income and changing terms and conditions of debt repayment (T&C) dynamically interact to raise systemic fragility within three main economic sectors:

business financial

household consumption

government balance sheet

Two important corollary themes follow from the general analysis of Systemic Fragility. Both challenge prevailing economic orthodoxy. Both reject the notion that the economy, in national or global form, tends to be long run stable and returns to equilibrium due to market forces and/or government policy intervention nominally assisting market forces to adjust when external events or forces disrupt equilibrium.

Contrary to contemporary economic analysis, Systemic Fragility analysis maintains the price system in general is not a force for stabilisation. That is particularly true of the role played by financial asset prices. In the 21st century financial securities prices in particular have increasingly become a force for destabilising the system. Not all price systems respond to supply and demand forces the same. And price systems are related but not all equally so. More volatile financial asset prices behave differently and appear increasingly to drive goods (products), factor (wage or labour prices) and even money prices (interest rates) in the 21st century, as financial asset investing expands within the global economy and real asset investment in turn declines.

A second challenged orthodox assumption by Systemic Fragility analysis is that government fiscal-monetary policies can stabilise the system. Systemic Fragility analysis suggests this is increasingly less the case as fragility builds within the global system. Weaker and unsustainable recoveries are the result of the growing ineffectiveness of fiscal-monetary policies under conditions of growing systemic fragility. The failure of such policies is manifested in economic growth 'relapses' (sharp slowing or negative growth for single quarters), as has occurred in the US economy four times since 2011; in the short and shallow repeated descents into recessions as have occurred in Japan and Europe since 2008; or, most recently, in the failure of excess monetary stimulus in China since 2013.

Systemic Fragility: A First Approximation Definition

Contemporary economic analysis has yet to fully or adequately understand the various mutual interactions and feedback effects between debt and income, including the often-negative consequences of the same.

In contemporary analysis, credit and therefore debt is viewed as an 'external' variable – a product of savings deposits, of banks as passive lending intermediaries, and of the cost of money influenced by central bank money supply incentives to private banking system lenders. Income is narrowly defined and determined from the production of real goods and services. There is only one price system, whether associated with financial assets, goods and services, or factor prices. Supply and demand functions largely similar in all price systems; that is, 'one price fits all', where prices serve to equilibrate and stabilise markets and economies long term by means of supply and demand that eventually rebalance markets and systems. Departures from equilibrium – and thus system instability – are due to 'external' supply and/or demand shocks rather than the progressive development of internal forces within the system. All these assumptions are rejected in the case of systemic fragility analysis.

Financial fragility as developed originally by the late economist, Hyman Minsky, in the 1990s, consisted of three primary variables: debt, cash flow and terms and conditions of debt repayment, or T&C. But the Minsky variables are incomplete. Level of debt alone is insufficient. Cash flow is too narrow a concept. And T&C is far more complex today than it was a quarter century ago in Minsky's time.

Furthermore, Minsky's primary focus on the business sector and financial fragility is only part of the picture. Fragility is applicable for household and government unit sectors as well. It is not just financial fragility that leads to financial instability events and financial crises and cycles. Household and government unit debt, income and T&C changes play major causal roles as well. Household consumption fragility and government fragility feed back on financial sector fragility through both debt and income channels and may, in turn, be determined by change in financial fragility themselves. Nor does Systemic Fragility simply originate and then propagate from the financial side to the other two sectors of the economy. It is the development of simultaneous fragility conditions within and between the three sectors – business, households and government units – that is the focus of Systemic Fragility analysis.

Systemic fragility expands not simply by adding up levels of fragility that develop within financial, household, and government sectors or forms. How fragility between those sectors mutually determines each other and raises (or lowers) fragility at a systemic level is equally important.

The quality of debt, and thus sources and kinds of debt, are also important – not just levels of debt or even rates of change in debt levels. On the business side, for example, it is important whether debt is accrued in the form of corporate junk bonds vs. bank commercial loans vs. some form of securitised asset. Debt that is incurred from 'inside credit' issued based on collateral values of other financial assets is also potentially more fragile. Whether the debt in question is highly 'leveraged' or not is critical as well, as is debt that is associated with greater risk due to what is called 'maturity transformation' – i.e. incurred short term and reinvested long term. Business fragility may be greater where there is a greater proportion of short term securities in the total debt portfolio, for example when 'repos' or 'junk bonds' or equity EFTs make up a greater proportion. Similar composition of debt considerations apply to households' consumption fragility and government units' fragility – i.e. whether the debt consists of mortgages vs. credit cards, or student vs. payday loans, and for government units when debt is associated with derivatives like interest rate swaps vs. debt in other more stable forms. What all this suggests strongly is that, while debt analysis is integral to Systemic Fragility, it must be segmented and differentiated for purposes of analysis, since it interacts differently with the other two strategic variables – i.e. income for repayment of debt and terms and conditions for how income is used to repay debt.

Systemic Fragility expands on Minsky's concept of cash flow as well. Fragility depends not just on the availability of cash flow. Other forms of 'near liquid' assets are relevant and important, since they too may be used for debt servicing. A broader concept of business sector income that includes near liquid assets that are available for debt financing is thus more appropriate for Systemic Fragility analysis.

In the case of household or consumption fragility, the better analog of cash flow is disposable income – defined as consisting of wage income plus transfer payments and supplemented by other forms of household income.

This variable also adjusts wage income to exclude households that earn the majority of their income from capital forms of income. The 'bottom' 90% of households' wage income would thus be relevant (to use a cut off for the US economy, varying with other economies).

For government units the definition of income relevant for debt servicing differs as well. It includes tax revenue as income, supplemented by additional income sources from which government units may finance debt. At the national government level, income may also assume the form of creation of fiat money, by means of QE or other forms of electronic fiat money creation.

Systemic fragility analysis further expands the concept of T&C, 'terms and conditions' under which debt servicing occurs. T&C as a concept is appropriate across all three forms of fragility – financial, consumption, and government units. T&C is composed of various elements, which typically may include: level of interest, term structure of debt, fixed or variability of the payments, penalties, definition of default, post-default obligations, covenants permitting missed payments or other exceptions, payments in kind, refinancing conditions, and other factors. T&C is thus a group variable defined differently over time and place.

To partially sum up, Systemic Fragility begins with nine main determinants, each of which and together interact mutually on the three key variables within each form of fragility – i.e. debt, income, T&Cs. Systemic fragility is dynamic not only within a given fragility form – i.e. the financial, consumption, and government – but also between the three forms of fragility. Fragility grows as levels of debt rise, as income for financing debt slows or declines, and as T&C changes impose limits and restrictions on debt servicing. Changes in all three variables may raise the degree of fragility within a particular sector or form of fragility. As changes in one or more of the three variables occur, the interactions or feedback effects on the other variables adds further to the development of fragility within the particular form as well – thus adding or reducing the degree of Systemic Fragility within the particular form. The same applies to mutual feedback effects between the three forms, or sectors, which may contribute to aggregate Systemic Fragility as well. This initial framework – three variables (debt, income, T&C) within each form (financial, consumption, government) and between the three forms or sectors, suggests that Systemic Fragility is best estimated by means of three simultaneous equations.

The weight given to interactions between variables and between forms, with mutual determinations and feedback effects between the same, also suggests the development of fragility is not a linear process – i.e. proceeding from one level to the next higher as debt or income rise and/or fall, respectively. Nor is Systemic Fragility estimated by a simple adding up of levels of fragility that develop within financial, household, and government units.

Given the dynamic interactions and feedback effects in Systemic Fragility analysis, 'transmission mechanisms' (TMX) enable and propagate the mutual determinations between variables and between forms and are critical concepts and variables to the overall conceptual framework of Systemic Fragility analysis.

Three initially identified important TMX variables include: the two price systems associated with both financial assets and real goods & services; fundamental government monetary-fiscal policy shifts; and the psychological expectations of various agents – in particular the investor-finance capital elite but also households as well as government policy makers at central banks, legislatures, and executive agencies. The intensity of feedback effects and the effectiveness of the transmission mechanisms may vary with the phase and condition of the business cycle.

Systemic Fragility is therefore more than just the sum of its three variables or its three forms. It is a dynamic process that is the outcome of real conditions, markets, institutions, government policy, as well as subjective, psychological expectations of actor-agents within the three sectors or forms. Because fragility is the product of internal trends and variables, it develops and grows endogenously. Systemic Fragility analysis, however, is not a 'balance sheet model'. It implies no equilibrium analysis, the departure from which is restored either naturally by means of price system adjustments or as a consequence of policy actions. Nor is Systemic Fragility about 'external shocks' but represents an analysis of conditions endogenous to the economy and is therefore more appropriately associated with disequilibrium analysis.

Systemic Fragility – A Measurable Index?

The ultimate objective of establishing an alternative conceptual framework based on the concept of systemic fragility is to develop a quantitative index that measures the degree of system fragility in the economy. The objective is to quantify variables and their interactions and feedback effects, in order to develop a numerical index that represents an indicator of the aggregate degree of fragility as it develops within the system.

The ultimate objective of establishing an alternative conceptual framework based on the concept of systemic fragility is to develop a quantitative index that measures the degree of system fragility in the economy.

A Systemic Fragility Index would first measure how an economy (national, regional or global) grows unstable over time and may be expected to erupt at some point in a defined financial instability event – such as a credit crunch, credit crisis, insolvency crisis, credit market(s) crash, or a similarly significant financial instability event. In addition, such an index may also prove applicable to predicting the rate and magnitude of a contraction of the real economy following a major financial instability event, as well as perhaps to estimate to what extent a weak recovery following contraction may prove protracted.

**This article is based on the more detailed analysis provided by the author's book, "Systemic Fragility in the Global Economy", by Clarity Press, January 2016.*

About the Author

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