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A General Theory of Macrofinance: Towards a New Paradigm*

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Abstract

Purpose - The Global Financial Crisis of 2008 has triggered a reevaluation on economic theory and policy practice, and both economists and financial analysts are reaching a consensus that the financial system plays an important role in the macroeconomy and that macroeconomic theory must be restructured to incorporate endogenous financial factors.
Methodology - Based on a reflection on the inherent flaws of traditional mainstream economics, this paper puts forward a Macrofinance Theory as a new paradigm for macro financial analysis.
Findings - The macrofinance paradigm regards the financial system as the core element of a complete and endogenous analytical framework.
Originality/value - The objective of macrofinance is to construct a scientific methodology by analyzing the inherent laws of modern financial systems in order to establish a comprehensive theoretical framework that unifies the financial sector with the real economy and combines theory with policy making and implementation.

Keywords: Macrofinance, Financial System, Real Economy

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1. Introduction

Since the inception of macroeconomics, "theoretical revolutions" have taken place on average every thirty years and dictated the basic development path of modern mainstream macroeconomics. The systematic retrospection on economic theory triggered by the global financial crisis has reflected the fact that the mainstream paradigm has been eroding the rationale of macroeconomic theory and the effectiveness of policy due to an omission of financial factors and the ensuing theoretical bias. With the development of the modern financial system, this erosion is becoming ever more severe. When the real world goes through changes, and theories developed based on the old state of affairs are no longer capable of predicting and reflecting such changes, theoretical renovation becomes inevitable. Similarly, changes in our time demand a systematic reconstruction of macroeconomic theories based on endogenous financial factors.

The history of science has proven that when a theory cannot explain the practical world, it usually indicates that a paradigm-shift has become indispensable. After the most recent crisis, although there has been considerable criticism against mainstream macroeconomics for its lack of understanding about finance, the fundamental issue of methodology has again been neglected. For a very long time, many economists have devoted themselves to the refinement of the general equilibrium theory. Such a refinement has been characterised by problems of purely formal logic turning into mathematical minutiae, instead of putting an emphasis on the understanding of real world phenomena and behavior. Many economic theories "go around in circles" in self-fulfilling deductive systems. However, economic cycles and fluctuations are not occasional deviations from the established equilibrium, but rather are rooted in the dynamic interaction of socio-economic processes. New economic and financial theories must follow a methodology that is closer to the real world, only then will it better explain economic phenomena and behavior, and lay a solid foundation for a theoretical framework of macroeconomic stability. Against this background this paper attempts to put forward a macrofinance paradigm on the development of modern financial systems.

The proposal of macrofinance attempts to reevaluate in-depth the existing methodological paradigm that has been dominant for a long time but significantly deviated from the real world. Compared with traditional economic methodology, our theory puts much more emphasis on systematic thinking, a holistic field of vision, developmental perspective and dynamic practice, and its commitment to establishing an analytical framework that aligns logic with facts and theory with practice. Under such a framework, theories of microfinance and macrofinance are no longer isolated from one another, financial development and the real economy receive unified recognition, and a logical link between theory and practice is created in combination of general laws and "national tradition". Based on this methodology, the theoretical framework of macrofinance will provide an overview of the modern financial system, as well as the underlying logic and theoretical framework to describe it.

2. Mainstream macroeconomics prior to the crisis: the influence of financial factors is substantially underestimated

For far too long, financial system has been excluded from the analytical framework of mainstream macroeconomics, resulting in a long-term underestimation of the actual influence of the financial system on the macroeconomy, artificially cutting off the interaction and correlation between the two. Under the paradigm of mainstream neoclassical economics, the baseline of the perfect market and the assumption of perfect information have made it possible to circumvent the impact of uncertainty. The optimized decisions made by individuals based on predetermined possibilities automatically lead to market equilibrium. Consequently, general equilibrium theory involves neither the functions of organizations and systems, nor the innovative activities of entrepreneurs (Garrison, 1982). Under such circumstances, the general equilibrium theory, represented by the Arrow-Debreu Paradigm, set up a frictionless perfect market that completely ruled out the value and function of the financial system[1].

Using broader view of economic theory to assess financial factors, we find that although economists occasionally pay their attention to financial factors, such attention or explanations are always beyond the mainstream economic paradigm and lack a comprehensive analytical framework with an appropriate theoretical base. The early Debt-deflation theory believes that deflation during a depression would shift wealth from debtors to creditors. Shrinking net wealth of debtors would further dampen investment and consumption, leading to ongoing deterioration caused by economic depression (Fisher, 1933). In his General Theory, Keynes believed that financial factors are an assignable source of economic depression. However, he puts the analytical emphasis on investor's confidence. Keynes' successors emphasized "liquidity preference", but their analysis was similarly focused on money rather than credit. Grurly and Shaw are among the earliest to highlight the function of financial intermediaries. They believed that the intermediary function of the financial system lies mainly in facilitating the flow of loanable funds which causes enhanced economic efficiency (1955) [2]. Grurly and Shaw clearly identified the function of the financial system and banks in channeling loans and proposed ideas that were different from the Arrow-Debreu Paradigm. However, before the full blossoming of the new theories of Grurly and Shaw, the M & M Theorem (Modigliani and Miller, 1958), which is based on the Arrow-Debreu Paradigm, made a comeback. Employing mathematical models, it proves the lack of correlation between economic and financial decisions under perfect market hypothesis [3]. Due to the extensive presence of M & M Theorem, financial factors gradually disappeared from mainstream economics (Gertler, 1988).

Since the 1960s, neoclassical economics, represented by Monetarism, Rational Expectation Theory and Real Economic Cycle Theory, has become the mainstream of macroeconomics. In dealing with financial factors, the economic theories based on the neoclassical framework usually emphasize the function of money only and draw little attention to the influence of the financial system and financial intermediaries per se. Even when dealing with monetary issues, the emphasis on the function of money was significantly weakened during the development of these economic models. Friedman

and Schwarts, as the representatives of monetarism, believed two difficulties that banks encounter in their operation have accelerated economic depressions. The first difficulty is the reduction in the wealth of the shareholders of bank. The second difficulty is the reduction in the money supply (Friedman and Schwarts, 1963). However, this theory suffers from two defects. First, its lack of a theoretical basis provides no explanation of why monetary factors have a long-term and consistently non-neutral effect on the real economy. Secondly, it lacks adequate evidence to attribute the persistent and sharp reduction in output solely to the reduction in the money supply. Since the 1970s, the School of Rational Expectations, represented by Lucas (1972, 1973) and Sargent and Wallace (1975, 1976), became the dominant player in economics. This school, the theoretical basis of which is the monetary misperception theory established by Lucas[4], believes in the "neutrality of expected money"[5] and the "policy-ineffectiveness proposition". As both core propositions of the rational expectations school lack empirical support, the neoclassical explanation of the instability of total output shifted to "real impact" from the early 1980s. Hence the Real Economic Cycle Theory, represented by Kydland and Prescott (1982), was ushered in. By highlighting the assumption of the neutrality of money, it not only believed money being neutral in the long term, but also assumed its neutrality in the short term as well-known the superneutrality of money[6]. The theory of the superneutrality of money is a full comeback of the Classical Dichotomy. In this approach, all financial factors, including money, have finally faded out of the theoretical framework of mainstream economics.

Economics has been clearly divided into microeconomics and macroeconomics since the publication of Keynes' General Theory in 1936. On the one hand, the Walras General Equilibrium in the realm of microeconomics is still the dominant theory although there are the Monopolistic Competition Theory (Chamberlain, 1933) and Incomplete Competition Theory (Robinson, 1933). On the other hand, macroeconomic model based on the Keynesian IS-L Model is believed to lack a micro basis, the same is true in terms of Monetary Theory. In search for a micro basis, macroeconomic research is increasingly inclined toward neoclassical economics. Since the 1960s, neoclassical theories have played a significant role in macroeconomics, at least in terms of methodology. As such, we can see that the development of theoretical economics clearly demonstrates how financial factors faded from mainstream macroeconomics, from the "long-term neutrality of money" proposed by the early monetarists, to the "neutrality of expected money" proposed by the school of rational expectations, and finally to the superneutrality of money set forth by the school of Real Economic Cycles.

However, the neglect of financial factors in mainstream economics based on the neoclassical framework is not because the financial system plays an insignificant role in the operation of the economy, but because it is difficult to combine financial (monetary) theories with theories of value. Within the neoclassical framework, the major obstacle for macroeconomics to include financial factors lies in the difficulty in providing a rational micro basis for financial (monetary) theory. Neoclassical macroeconomics has never satisfactorily answered this question[7]. From the

viewpoint of methodology, the neoclassical model represented by the M & M theorem has gained so much popularity not only because of the "beautiful form" of its mathematical deductions, but also because of its elimination of the difficulty in modeling by simply excluding difficult financial factors. This is a deep-rooted methodological reason for the popularity of such financial factor-deprived models. Based on the M & M Theorem, both the neoclassical Investment Theory (Hall and Jorgenson, 1967) and the Stochastic Competitive Equilibrium Growth Model (Brock and Mirman, 1972) excluded financial factors in their modeling. Such a financial factor-deprived concept of modeling had dominated mainstream economic theory in the 1960s. The revolution in macroeconomic methodologies in the 1970s further strengthened this trend. As a result, financial factors have withdrawn from consideration of eminent economists performing theoretical modeling and empirical analysis.

Although financial factors have been dismissed from the theoretical frameworks of mainstream economics, the impact of financial systems on the macroeconomy remains evident. Especially since the 1970s, with the establishment and development of the modern financial system, financial factors start to play an increasingly important role in the economy, and the correlation between the financial and the real economy began to draw the attention of some economists. By stressing the imperfection of capital markets, Tobin (1975) pointed out that the Debt-deflation" Theory (Fisher, 1933) was a natural complement to Keynes' theory of income determination. Minsky (1975) and Kindleberger (1978) discussed the damage of financial instability and financial crises on the real economy from the perspective of the capitalist economic system and financial history. On the view of monetarist, Bernanke (1983) believed that a change in the money supply was not sufficient in explaining the Great Depression and that the paralysis of the financial system was an important cause for sustained deep recession[8]. Entering the 1990s, ever-evolving financial innovation served as fertile soil for the development of financial theory. Merton (1995) and Levine (1997) reviewed the function and inportance of the financial system under uncertainty. They pointed out that the presence of financial markets and financial intermediaries would not only facilitate the allocation of resources, but also improve social welfare by improving risk sharing and reducing transaction costs. Allen and Gale (2000) compared the strengths and weaknesses of financial intermediaries and financial markets in promoting a shift from savings to investments, facilitating transactions, implementing joint control, improving risk management, acquiring investment information, and allocating resources. They further expanded the theoretical assumption of the function of the financial system, giving rise to the "Comparative Financial Systems Theory". Researches in the correlation between the financial cycle and the economic cycle have been lagging behind. The most prominent studies are the Financial and Economic Cycle Theory (Bernanke, Gertler and Gilchfist, 1999) and the Credit Cycle Theory (Kiyotaki and Moore1997). These two approaches attempt to include financial factors into the framework of mainstream economics. However, with a closer look into them, one may find that the Financial and Economic Cycle Theory is based on the financial

accelerator effect and the Credit Cycle Theory on the restraint effect of mortgage credit. Both focus on analysis of financial constraints caused by information asymmetry. Credit and financial frictions are considered to be results from adverse selection and moral hazard under asymmetric information. These two theories offer no clear explanations on the key issues such as the endogenous relationship among money, credit and the real economy or dynamic feedback paths. In this sense they cannot offer convincing explanations of shocks that originate from the financial system.

In short, under neither mainstream nor alternative paradigms has macroeconomic theory managed to offer a general analytical framework for financial factors in the operation of the economy with consistent logic and a sound theoretical foundation. Until now, most of the studies on the link between finance and the macroeconomy have failed to deliver a comprehensive analysis of financial system. Most analysis of the impact of financial system on macroeconomy is conducted by implanting certain financial frictions into the neoclassical or Keynesian models. However, if mainstream economics only regards financial factors as "frictions"and fails to include them as a key component of economic system, research on monetary and financial theory can only create "small alterations" and never escape the traditional framework of neoclassical economics[9]. It seems unlikely that macroeconomic theory can make any major breakthrough if the inherent laws of the financial system and the endogenous correlation between the financial system and real economy are not fully comprehended and explored.

3. The macrofinance proposition: three principal elements

Since the 1970s, as the financial system developed and grew more complicated, financial imbalances have taken place periodically, and financial and macroeconomic imbalances have reinforced each other. Such reinforcements sometimes led to frequent, sustained and significant deviation from the long-term economic trend. The breakout of the recent global financial crisis has put the global economic and financial system under severe tension. This once-in-a-century financial crisis has taught us three lessons. First, the festure and function of financial factors in economic development are not yet fully recognized, and financial risks have been underestimated for a long time. Secondly, the development of finance has severely departed from factual economic growth. There is a need for scholars and practitioners to clarify the relationship between finance and the real economy. Thirdly, the traditional economic framework has failed to integrate financial theory at both macro and micro levels.

In this circumstance, a financial theory should be built up with a more holistic, systematic and realistic methodology. The macrofinance defined in this paper is based on the notion of combining macro and micro financial theories. Conceptually this definition originates from the idea that the financial system and the real economy are integral parts of the economic system. The macrofinance paradigm intends to identify and outline the general laws of financial development with a global vision and to analyze the dynamic relationship between financial and economic development from

a historical perspective. Based on our initial analysis, we have developed three principal elements of macrofinance, which are elaborated as follows.

The first element of macrofinance is that the financial theory under such framework stresses the integration of macro and micro analysis. Economic and financial phenomena are an integral part of micro activities and macro performance. If cutting the inherent connection between micro and macro finance or regard micro and macro finance as conceptual "opposites", we face tremendous challenges to make breakthroughs in financial theory and will not be able to effectively explain real world phenomena. For a long time, there has been a huge gap between the micro financial theories represented by Asset Pricing Model and corporate finance, and the macro financial theories represented by monetary economics and the Credit Cycle Theory. The former focuses only on the behavior and decision-making of individual market players, while the latter attempts to circumvent the interaction between individual market players and tries to establish connections between aggregates. One of the lessons that we have learned from the global financial crisis is that the macro analysis of finance has not really adopted a top-down approach to exploring how changes in macrofinance affect behaviors and decisions of individual market players at the micro level. Micro financial analysis has not adopted a bottom-up approach to analyzing how the behavior of the individual market players may lead to macroeconomic and financial imbalances due to the "fallacy of composition" (Huang, 2010). The fallacy in methodology has become a huge impediment to the development of financial theory. To solve this problem, we would need to regard micro and macro finances as integral parts of a more general framework. Only when we analyze the two aspects cohesively and consistently and establish a sound logical connection between micro behaviors and macro phenomenon, can the financial theory step into a new era.

Secondly, with regard to financial history, macrofinance stresses the unity of finance and the real economy. Finance functions to meet demands of the real economy. However, since its inception financial innovations have become more complicated, and financial activities have deviated from the real economy. Externalities caused by the financial system have become a critical source of systemic risk. Unlike industrial capital, financial capital is not limited to a particular industry or region. It is more homogenous and volatile and has a shorter capital cycle. Because of this feature, financial capital is unique and independent of industrial capital, and the financial cycle frequently deviates from the industrial cycle. With the development of modern financial system, the foundation and conditions for financial operations keep changing, and the value basis of the financial system is also evolving. Financial expansions that deviate from the real economy have proved to be unsustainable and extremely harmful to long term economic stability. Therefore, financial development should be in consistence with the real economy, and economic expansions should be based on accumulation of wealth. In essence, the combination of finance and real economy is also a process of reconstructing the theoretical foundation of finance, because this combination is the key to understand modern financial and economic system. Lastly, with regard to development of finance, macrofinance stresses the combination of general laws of economics and finance with "national tradition". The efficacy of a

theory depends on both whether it is derived from logical deductions made under general assumptions and whether it is able to explain and guide practice. As a theory of explaining complicated phenomena, finance has to clearly define the applicability and constraints of the general laws it endorses. One general law may lead to totally different outcomes under different contexts. Therefore, when a general law of finance is used to guide the policy practice of a country, it has to take account of specific constraints to the country. The history of global financial development has shown that the formation of financial system is never an isolated process, and the national tradition has profound influence on its financial system. The "national tradition" includes not only resources in a general sense, but also the social, economic and political environments that in historical terms specifically determines the actual choices and development direction of a country's financial system over the long term. Whether we can combine the general laws of finance with national tradition is the key to the effectiveness of finance in theory and practice. In particular, whether China can develop a new financial management system consistently with its national tradition and the globalization trend under economic globalization and financial integration is the key to the success of China's global financial vision.

In view of these three principal elements, China should focus on the following three foundations to develop a macrofinance framework:

- The empirical foundation – the methodology must be built upon objective facts and experiences.
- The value foundation – China's financial development should be in line with the long-termsustainable devgelopment of China's economy.
- The practice foundation – China's financial development should be based on its own national tradition.

4. Theoretical foundation of macrofinance: reconstructing a scientific methodology

As a bridge between lenders and borrowers, the financial system has long been regarded as a "black box". Economists draw much more attention to what is happening on the two ends of the bridge, whereas how credit moves and alters within the box is given insufficient attention. Under the framework of mainstream neoclassical economics, the general equilibrium theory, represented by the Arrow-Debreu Paradigm, enables a "frictionless" perfect market with the assumptions of zero transaction costs and perfect information. In this system, the financial sector is of little significance, as it has no impact on the conditions and processes of market equilibrium. The last few decades of the development of economics witnessed a fade-out of financial factors from the mainstream economics since the M & M Theorem proved that economic decisions made under perfect market conditions are independent of financial judgment. Particularly since a wide application of the Efficient Market Theory, research on economic cycles and volatility has focused on economic factors rather than financial factors. As a result, risk has been systemically underestimated.

In recent years, financial deviations from the real economy have attracted the

attention of economists and commentators. People began to complain that unchecked financial expansion had hurt economic growth and social welfare and blame this on regulation loopholes and immoral bankers. However, the long-term deviation of the financial system from the real economy actually reflects the fact that the financial system has its special laws that are different from those of the real economy. With the methodology of mainstream economics, instability is not explained as a special feature of the financial system, and endogenous instability is not regarded as something that must be explained by a renewing theory. Neither Traditional Keynesian Theory nor the Popular Monetarism Theory can explain instability in the macroeconomy and the financial system. In fact, economic performance is so closely related to financial system that only when financial factors are incorporated into the traditional macroeconomics can such a theory serve as a guide to practice (Minsky, 1986). In this sense, instability in the macroeconomy nowadays can be attributed to the partial understanding of financial laws rather than to greedy Wall Street tycoons or the slow and weak reaction of regulators.

In the past several decades, mainstream economic theories have in a biased manner ignored the importance of financial factors. We rarely come across any systematic analysis of endogenous financial factors in economic literature. This not only causes confusion in understanding the real economy, but also has triggered a crisis in economic theory. Under such circumstances, to sophisticatedly reconstruct macroeconomic theory to include endogenous financial factors has become urgent. If we look at macroeconomic development from a historical perspective, the next 10 or 20 years would be a critical period for another revolution in macroeconomic theory. The Great Depression in the 1930s gave rise to Keynesian theory. The "stagflation" in the 1970s and 1980s prompted advancement of neoclassical economics (including monetarism, the Rational Expectations Theory and the Real Economic Cycle Theory). Most recently, the global financial crisis has brought on calls for macroeconomic theory to incorporate financial factors. Macroeconomic "revolutions" have occurred every 30 years or so. This partly reflects a shift in economic theories over time and partly exposes inadequacies of previous theories in generality and applicability.

In reconstructing a theory, its relevance to practice is a foremost consideration for rationality and legitimacy. For an economic theory to be beneficial to sound policy decisions, it must be compatible with reality. However, for mainstream macroeconomics, the economic world it tries to build has never existed. Right now the challenge economists must face is how to transition from unrealistic modeling to theoretical reconstruction with insight and sensitivity. Insight and sensitivity implies that new theories must be universally applicable, aligned with the real world, and have explanatory and predictive power. They should not only be able to explain historical events, but also be predictive of current development and future trend. Only a scientific economic methodology derived from the real world can support a universal and living analytical framework. The three principal elements of macrofinance are proposed on the basis of this retrospection on the mainstream economic methodology. The objective of macrofinance is to return to scientific economic methodology by analyzing the inherent laws of modern financial system

and set up a comprehensive theoretical framework to unify finance with the real economy by combining theory and practice.

In general, macrofinance tends to provide a distinctive methodology that is able to identify the fundamental notions and principles of economic and financial systems and to offer practical guidance for policy making. In contrast to the traditional economic methodology, macrofinance puts much more emphasis on systematic thinking, a holistic field of vision, far-reaching perspective, dynamic practice, and its commitment to establishing a analytical framework that aligns logic with facts and theories with practice. Under such a framework, theories about microfinance and macrofinance are no longer isolated from one another, finance and the real economy along with internal and external financial development receive unified recognition, and a logical linkage between theory and practice is created to combine general laws with "national tradition". Based on such a methodology, the theoretical framework of macrofinance will provide an overview of the contemporary financial system, as well as the underlying logic and theoretical framework used to create describe it.

5. Modern financial theories based on "macrofinance": a new paradigm

In general, the global financial crisis has triggered a re-evaluation on economic theories and policy implementation. An increasing number of economists are reaching a consensus that the financial system plays an imperative role in the macroeconomy and macroeconomic theory and that marcoeconomics must be restructured to incorporate endogenous financial factors. Such restructured theories will become the foundation for the study of macroeconomics and the formulation of macroeconomic (and financial) policies.

In restructuring macroeconomic theory by incorporating endogenous financial factors, we need first of all to examine characteristics and laws of financial system and set up an analytical framework that can clearly outline and describe laws of dictating the operation and evolution of finance. According to the general principle and methodology of macrofinance, such an analytical framework must be based on configuration and development of financial system so that it can summarize and integrate the existing foundation and developmental laws. To do this, we should consider the connections between the real economy and the financial system, as well as central queries about the transmission of economic policy within the real economy and financial system.

Furthermore, every theory has a value orientation that determines the perspective and foundation of analysis. Based on the core elements of macrofinance and function of the financial system in the operation of an economy, financial development aims to promote long term, sustainable and stable economic development by setting up a highly competitive modern financial system. As such, the logical path for establishing a theoretical framework of macrofinance is to analyse factors that affect the financial competitiveness of a country in the long term, draw conclusions about major features and laws of evolution of the financial system, and restructure the theoretical ground of modern financial system.

Evidence has shown that, although there are many factors that could affect the

competitiveness of a country's financial system, the history of global economic and financial development has demonstrated that there are three core factors that determine the competitiveness of a nation's financial system, namely efficiency, stability and the ability to contain crises. The first two factors are the pillars of financial competitiveness, while the ability to contain crises determines to what degree a country's financial system can regain efficiency and stability after a crisis strikes. In short, efficiency determines the "vitality" of a financial system. Stability determines its "flexibility". The ability to contain a crisis determines its "resilience". These three complementary factors constitute the "three pillars" of competitiveness of a modern financial system.

5.1 Efficiency

The financial system affects economic output through its impact on resource allocation. The efficiency of a financial system can be evaluated from two aspects. The first aspect is the efficiency of the financial system. The second is whether or not resource allocation within the financial system can affect economic output. The former is about the transmission mechanism within the financial system, while the latter is about the efficiency realization mechanism. Under the macrofinance framework, the evaluation of the efficiency of a financial system should not be confined to the system itself, but be extended to the correlation between the financial system and the real economy. The key is a profound connection between its micro basis and macro effects. A comprehensive evaluation of efficiency of a country's financial system should include three efficiency - micro efficiency, macro efficiency and synergistic efficiency. Within the realization of financial efficiency, the transition from micro efficiency to macro efficiency is not a process of simple linear aggregation, but relates to the reinforcing, offsetting, or mutating effects caused by various frictions and synergies created during its composition. Only when we correctly understand these nonlinear transmission mechanisms can we set up a link between micro efficiency, based on individuals, and macro efficiency, based on the aggregate. Furthermore, financial systems never work in isolation but are intimately and extensively related to their external environment and policy variables. Development of financial systems in different countries have all shown that the efficiency of a financial system is broadly affected by the economic, political, cultural, and policy environments of a country during the transition from micro foundations to macro effects. Therefore, the efficiency of a financial system depends not only on the mutuality and quality of the financial system itself, but also on the correlation and level of coordination between the financial system and the real economy. In this process, to create the external conditions (policy environment, legal framework, ethics, social and cultural environment, etc.), which can ensure the interaction between the financial system and the real economy, is critical to all countries.

5.2 Stability

Financial stability is the essential premise for the financial system to function, as well as a necessary condition for sustained economic growth. Economic history has shown that financial crises, especially banking crises caused by housing bubbles, incur huge economic and social costs. Since the 1970s, financial crises on the global

scale have the following features. (a) Financial innovation is increasingly related to financial crises. (b) Crises frequently occur during financial deregulation and liberalization. (c) Credit expansions and asset pricing bubbles are a major cause of crises. (d) Financial crises are more likely to spread to a global scale. (e) The ability for a country to manage its financial system plays an important role in financial stability. In practice, financial stability is affected by many factors in a complicated way and is beyond the explanation of any specific factor. Empirical analysis of the major world economies shows that, although economic factors play a critical role in kicking off and intensifying a financial crisis, noneconomic factors, such as political, institutional, and regulatory factors, cannot be overlooked. This implies that we need to adopt a multidimensional perspective when we look back upon financial crises and financial stability. Furthermore, the breakout, spread and expansion of financial crises are inherently related. We need to analyze the crisis from a dynamic prospect. Under the macrofinance framework, our views have to be expanded to include the formation, development, and collapse of bubble economies and financial crises in their entirety in fully examining the linkages between the real economy and the financial system. Understanding the market process is the key to analyzing the formation of bubble economies and financial crises. Through an understanding of the interactios between the financial sector and real economy for price, interest rates and credit during the crisis, can we gain an insight into the process of how bubble economies push towards financial crises and explore how the crises can be detected and prevented.

5.3 Ability to contain crises

Evidence has shown that the ability to contain crises is critical to the stable and efficient operation of financial system in the long term. Only those countries that can successfully fend off financial crises and efficiently cope with financial instability are able to sustain and strengthen the efficiency and stability of their financial system in the long term. Major factors of affecting a country’s ability to handle crises include emergency bailout programs during the crises, the effectiveness of intervention measures, the effectiveness of monetary and fiscal policies, early warning mechanisms for crises, the treatment of problematic financial institutions, etc. To deal with the recent crisis, central banks have expanded their balance sheets and tried to ease credit crunches by injecting outside liquidity. However, whether such liquidity injections can boost the economy as expected depends on how such liquidity is utilized. In the modern banking system, the willingness to lend is more crucial than the credit reserves of central banks. During a credit squeeze, what is truly scarce is not money or liquidity, but the real generation of credit along with the expansion of production. In the long run, we should focus on four aspects in strengthening the ability of central banks to handle crises. (a) As the authoritative body, central bank should be granted necessary autonomy and establish a institutional framework balancing between autonomous powers and the constraints of responsibility. (b) In terms of policy targets, central banks should continuously monitor asset price bubbles and credit expansions, and adopt measures when necessary to strike a balance among price, production, and financial stability. (c) In terms of policy tools, when the interest rate is approaching zero, central banks should launch nontraditional monetary tools on

top of traditional measures to cope with all the complications triggered by the crisis. (d) In terms of policy implementation, when the transmission mechanism of traditional monetary policies is interrupted during a crisis, central banks should be able to reconstruct a mechanism for the transmission of clear monetary policy. These aspects will determine the ability of central banks to counter the crisis.

It should be pointed out that the analytical framework of modern financial systems based on the "three pillars" is aimed to explore the basic factors of change in a country's financial system from the inside. Such an analytical framework offers us a structural view on the financial system. However, to understand the laws of the operation and development of modern financial systems in a more comprehensive manner, it is important to extend our analysis to the interrelationship among the financial system, the real economy, and macroeconomic (financial) policies. Based on this we would be able to formulate the macrofinance framework. In fact, global economic and financial development has demonstrated that the financial system will not only hamper economic sustainability, but also lead to serious asset pricing bubbles and financial crises if it deviates from the real economy. In particular, financial assets will deviate from the real economy and the investment logic will override production logic when the opportunity cost of industrial investments is determined by financial transactions. When financial capital drives out industrial capital and pursues self expansion and self realization, financial risks begin to accumulate in an accelerated manner. Furthermore, under the macrofinance framework, each country will present an optimized financial structure that is consistent with its social and economic development and reflects the unique characteristics of its history and culture. While minimizing financial costs and maximizing financial stability at the same time, the ability to satisfy the economic development in different stages will be the key to an efficient financial structure.

To sum up, the analytical framework of microfinance should logically keep on a process of deconstruction followed by comprehensive theoretical reconstruction, as summarized in Figure I.

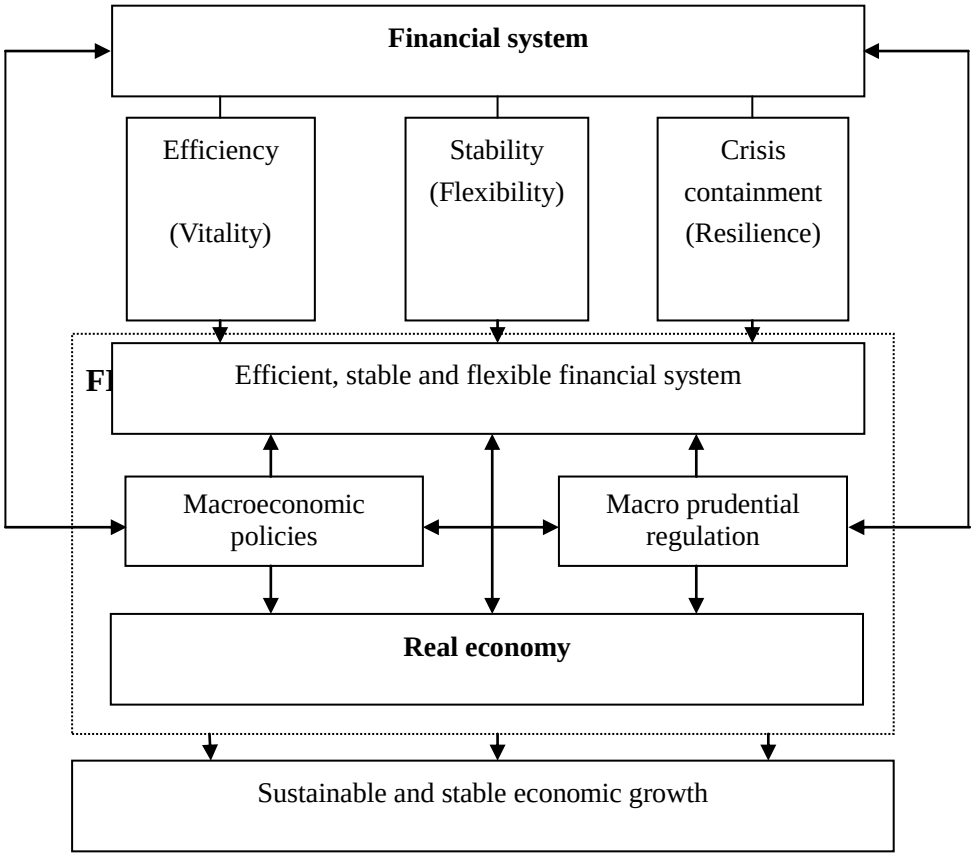

Figure 1. The Basic Framework of Macrofinance

6. Conclusion

As a logical framework to establish links between observable facts, economic theories should be based on empirical facts and must be logically consistent. An economic approach should be laid on three grounds. (a) The empirical foundation – the methodology must be built upon reality and evidence. (b) The behavioral foundation – the methodology must be based on the logic and rules of behavior of the market players. (c) The practice foundation – the methodology must have a clear path to direct theories into practice. The guidelines for the macrofinance methodology are derived from these three principles. On the one hand, we need a plain and unambiguous theoretical framework of including the laws for the development of the global financial system. On the other hand, we need to apply these laws to the economic development and policy making processes of a country.

As a holistic approach, macrofinance offers us a new paradigm to understand and research into the laws of the operation and evolution of modern financial systems. With its depth and breadth, the paradigm not only offers us a bird-eye view over the whole financial system, but also provides a logical track that leads from general theory to practice. As a "projection" of the real world, economic theories carry the basic goal of establishing a logic structure that is consistent with the empirical facts so as to depict the relationships between facts and thus to explain and guide practice. Therefore, the consistency between theory and fact is the premise of a rational and legitimate reform. If an economic theory can appropriately guide policy making, it

must be compatible with the real world. The objective of macrofinance is to reconstruct a scientific methodology by analyzing the inherent laws of modern financial systems to set up a theoretical framework that unifies the financial sector with the real economy and combines theory and policy practice.

In summary, the macrofinance approach explores the financial system as a central part of a complete and endogenous analytical framework. Going beyond the visible boundaries of economic phenomenon is the only way to thoroughly understanding it. Instead of confining the view to the fragmental factors, such as money or currency, a comprehensive financial theory must be established through a logical framework. As such, in restructuring a modern financial theory the macrofinance proposition focuses on three pillars (efficiency, stability, and ability to contain crises) and extends them to the endogenous relationship among the financial system, the real economy, and economic policies.

Notes

1. Under the Arrow-Debreu paradigm, however, the allocative efficiency of market is based on a series of unrealistic assumptions such as zero transaction costs, perfect credit, divisibility of assets and contracts and perfect information. These assumptions not only rule out the necessity of existing of financial system as a theoretical premise, but also completely cut off the endogenous connection between the financial system and the real economy. In a perfect market with zero transaction costs, zero credit friction and perfect information, there is no need to allocate resources for information retrieval, research, management supervision and designing contracts to facilitate transactions and improve risk positions, neither is it necessary to have central banks, regulators and other financial systems to restrict the financial market and financial intermediaries.

2. Meanwhile, Grurly and Shaw also believe that with the development of the financial system, the monetary stock will no longer be an accurate measure of credit flow. As such, they put forward the concept of "financial capacity" that not only includes monetary stock but also monetary analogues

3. The M & M Theorem includes several key assumptions of the "perfect market" – efficient market, no tax distortions, no bankruptcy cost for banks, and complete information.

4. Based on the Rational Expectations Theory, there will not be a short-term substitution between unemployment and inflation unless there is monetary misperception, i.e. money is neutral. Essentially, the rational expectations school is against Keynesianism. It has impact on the argument between Keynesianism and monetarism about the function and enforcement of macroeconomic stability policies (or monetary policy). The emergence of the school of rational expectations signifies the further "resurrection" of these conservative ideas. It stresses market completeness and extreme policy ineffectiveness, which effectively strengthens the Friedman theory.

5. i.e. expected money is neutral.

6. The initial real economic cycle theory does not involve the monetary factor. At the beginning, Kydland and Prescott (1982) developed a model that only includes real variables but can be extended to consider nominal variables. However, after they generated the initial model, Kydland and Prescott summarized that since economic cycles can almost be completely explained by real variables, it is unnecessary to introduce the monetary factor (1982). The concept of the superneutrality of money proposed by the real economic cycle theory is significantly different from the perspectives of Keynesianism, monetarism, and neoclassical economics in the late 1970s. The main representatives of such economic schools like Tobin, Friedman, and Lucas all agree that growth in the money supply has real effects and plays an important role in explaining fluctuations in output. As pointed out by Lucas (1996), "at least starting from Hume, the see-sawing battle between the two mutually exclusive views – one

believing in the neutrality of money and one believing that the change in the money supply will lead to employment and a change in output in the corresponding direction – have always been the core of monetary theories."

7. Since the 1980s, neoclassical economics attempted to offer a solution to the longstanding issue of combining monetary theories with value theories. A typical way of combining the two theories is to provide a micro basis for the monetary theories based on the consistency between general equilibrium and optimized individual behavior. Such neoclassical analysis on monetary theories is called "new monetary economics". There are two ways of research on "new monetary economics". The first is to combine monetary theories with modern financial theories, or the so called BFH system; it is targeted at the micro basis of Patinkin or Gurley and Shaw's "new ideas". The second is the model developed by Sargent, Wallace, Bryant and Lucas, which attempt to take the major issues in macroeconomics and apply them to microeconomic theory, following Hicks' ideas (1935).

8. Bernanke (1983) believed that financial crises lead to an increased real cost of capital flow between creditors and debtors. When the credit channel is blocked, on the one hand, potential borrowers cannot obtain sufficient funds for investment. On the other hand, lenders have to invest their capital to "less-than-optimal" projects. Besides, due to financial crisis, the credit market cannot effectively spread risk and it is difficult to get finance for indivisible projects. All of these not only hampers the efficiency of capital but also deepens the economic recession. Therefore, different from the M & M Theorem under perfect market assumptions, financial factors play a very important role in explaining the depth and length of economic recessions in times of information asymmetry.

9. Early works have been carried out effectively in this respect. For example, Austrian economists Hayek and Mises analyze the adverse impact of credit market frictions and financial distortions on economy. Such analysis is based on the adjustment of the market structure and stresses the "non-neutrality" of money and "endogenous" credit. They point out that credit expansion and monetary distortion will bring severe consequences (Hayek, 1933). However, as modern mainstream economics follows the pure mathematical logic paradigm, the methodologies of the Austrian economists have faded out and now appear as "ornaments" in works of a very few number of economists.

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