



# Post-Keynesian Empirical Research and the Debate on Financial Market Development

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*To my parents Nasrin and Hussein for their love  
I know you know I am an economist  
Don't worry – I am a Post-Keynesian ☺*

## Foreword

Recent years have evidenced a burgeoning of quantitative forms of modelling within the Post-Keynesian tradition. Over much of the Post-WWII period, Keynesian economics has contributed to the development of National Income Accounting and has assisted in the construction of large-scale econometric models for policy analysis and evaluation. Nevertheless, the appearance of the seemingly inexplicable phenomenon of “Stagflation,” characterised by a resilient combination of high rates of inflation with high levels of unemployment, assisted in the intellectual rise of Monetarism in the early 1970s and the subsequent “Rational Expectations Revolution.” Young economics graduates were soon attracted by new modelling frameworks such as Real Business Cycle Theory and its successors, while the New Keynesian synthesis offered a welter of different kinds of market failure that could move the economy temporarily away from its conditions of optimal growth. Somewhere in this proliferation of efficiency wage, Big “S” and little “s” inventory, and credit-rationing models, the point of effective demand seemed to disappear from view entirely (for example, see Blanchard & Fisher, 1990).

Meanwhile, Post-Keynesian side research seemed to languish, in part, due to a shared conception amongst certain eminent Post-Keynesian economists that quantitative modelling was ill-suited to the task of grasping what was essential about the Keynesian vision. Hyman Minsky, for his part, emphasised the importance of financial fragility, occasioned by loss of diversification, increasingly deferred (present value) payback periods, and increasing reliance on external finance on the part of banks, households, and firms. This is precisely the point where Minsky’s (1985) famous analysis of transitions between hedge, speculative, and Ponzi financial positions comes into play.

For Paul Davidson, one of the editors of the *Journal of Post-Keynesian Economics*, it was Keynesian notions of fundamental uncertainty and fluctuations in animal spirits that were deemed to be responsible for unpredictable shifts in the key behavioural parameters of the macro-economy, including those governing the preference for liquidity, the position of marginal efficiency of capital schedule,

and the marginal propensity to save out of household disposable income. These fluctuations rendered the Keynesian vision opaque to more conventional forms of statistical and mathematical analysis. Here, it would seem, the responsibility for such an implacable stance could be sheeted home to Keynes who, during in his debates with Jan Tinbergen over the validity of econometric modelling, had complained vehemently about a lack of sufficient homogeneity on the part of the available data. Opinions still vary widely as to what Keynes actually meant by this observation, but uncertainty and financial fragility play an undoubted role.

In Development Economics too, the application of both static and dynamic versions of input-output modelling, which readily lent themselves to a straightforward Keynesian interpretation in terms of effective demand, were soon displaced by neoclassical computable general equilibrium modelling, with input-output modules consigned the hum-drum task of determining the aggregation of intermediate inputs into production. In its emphasis on the importance of financial institutions, the strand of literature dealing with financial development represents an exception to the dominant focus of the orthodoxy in development economics, even though members of both the Post-Keynesian and more orthodox tradition have contributed to the debate, one which gained increasing impetus after the mid-1990s Asian Financial Crisis, pitting anti-dirigiste neoliberals against advocates of the interventionist developmental state. Foucault's 1978-1979 lectures at the Collège de France clearly reveal that neoliberalism, in both its German Ordoliberal and Chicago School versions, was firmly pitted against Keynesianism. For the German neoliberals, demand management, central planning, and the imposition of price controls were the thin edge of the totalitarian wedge. From the American neoliberal perspective, whose political orientations were constituted in the aftermath of the War of Independence, Keynesian interventions were viewed as the external imposts of a military and imperial state. In the person of Milton Friedman, the Chicago tradition found an ardent advocate of Monetarist principles in the field of macroeconomic policy.

Ironically, though, it was the very debates between Monetarists and Keynesians in the early 1980s over the relative effectiveness of monetary or fiscal policy that gave so much impetus to the development of modern time-series econometrics, including co-integration analysis, error correction modelling, and diagnostic testing for the validity and reliability of estimates. At the same time, quantitative modelling and simulation was making impressive forward strides. While any review of these developments must of necessity be partial and incomplete, it is important to appreciate the diversity of Post-Keynesian offerings and the prospects for reconciling previously opposed perspectives.

Researchers such as Peter Skott (1989) and Taylor and O'Connell (1985) constructed formal models to explicate Minsky's analysis of financial instability.

Meanwhile, building on the earlier work of Robinson (1952), Kalecki (1937), and Steindl (1952), Kaleckians, such as Amitava Dutt (1995), were composing theoretical models of accumulation, which emphasized the importance of finance and debt. In his Minskyan model, Tymoigne (2006) distinguishes between short-term and long-term borrowing, using a system dynamics approach, illustrated with block-flow diagrams. However, as Lavoie (2008) cautions, “[h]is feedback reaction functions are highly complex, but his diagrams are rather hard to interpret.”

Taking off from foundational work with the Cambridge Economic Growth Project (Godley & Cripps, 1983), Wynn Godley and Marc Lavoie (2007) have published a major text on Stock-Flow-Consistent approaches to modelling the macro-economy. For Lavoie (2008), this approach affords the prospect of reconciling what he calls both the Cambridge (which he associated with the Kaleckian or Kaldorian *and* the neo-Ricardian or Sraffian strands of post-Keynesian thought) *and* the “Wall Street views” (of the American “Fundamentalist” Post-Keynesians such as Paul Davidson and Hyman Minsky) (Dos Santos, 2005; Eatwell, Mouakil, & Taylor, 2008; Treeck, 2008).

At the New School of Social Research, Anwar Shaikh was engaged in the development of a coherent Classical approach to modelling accumulation and growth, which integrated both the short-run and long-run, while avoiding the Marshallian temptation to conceive of the former as Neoclassical and the latter as Classical. More recently (Shaikh, 2009), he has concentrated on the need to reconcile both Keynesian and Harroddian approaches to macroeconomic growth. The focus of his concerns are two central propositions: first, that a rise in investment will raise equilibrium output via the multiplier; and, second, that a fall in savings rate will raise equilibrium output in accordance with the “paradox of thrift” narrative (Shaikh, 2009, p. 456). In adopting a longer-run setting, Shaikh observes that investment not only creates demand but also raises capacity. From this perspective, he contends that the only self-consistent path for accumulation is one generating output growth at the Harroddian warranted rate. On the basis of this reasoning, he recommends that investment equations be modified accordingly. Those working within this Harroddian tradition also highlight the importance of articulating the relationship between successive short-run and long-run outcomes (Skott & Ryoo, 2008a, 2008b). Of course, if private sector investment always achieved the warranted rate of growth, there would be no need for Keynesian policies of job creation. Building on Shaikh’s Harroddian base, Chatelain (2010) has performed the useful task of incorporating credit rationing into a Stock-Flow-Consistent modelling framework, thus accounting for departures of investment from rates required to achieve the warranted growth path.

Taha’s book focuses on issues of financial development over the longer-term. To this end, Taha draws upon the Structural Vector Autoregressive (SVAR) modelling

of Stockhammer and Onaran. Their parsimonious Kaleckian approach is long-run insofar as it accounts for such things as productivity growth.

The financial system is always a double-edged sword. Sophisticated financial institutions help to mobilise savings and allocate financial resources to sites and projects where they can achieve the highest economic return. The very same institutions, however, can be a source of speculative excess, asset price inflation, and instability. Of course, while it is difficult to account for the prudential influence of regulatory agencies in a macroeconomic setting, aspects of fiscal sustainability certainly can be accommodated. More broadly, a developmental state can assume the role played by the head office of a multidivisional enterprise in managing its subsidiaries by effectively allocating funds to areas that will realize the highest social return. In this manner, Chandler's insights into the important role of corporate organizational forms are thus extended to encompass key institutions of state such as economic development boards. Taha's thesis helpfully reviews this literature on the developmental state.

In the aftermath of the Global Financial Crisis (GFC), issues of fiscal sustainability are coming to the fore. Conservatives argue for a necessary return to fiscal conservatism in the form of budget surpluses. Keynesians argue the need for ongoing deficit spending in the US economy to prevent a double-dip recession and restore buoyant global-economic conditions. From the "modern money" perspective (Wray, 1998) endorsed by Taha, budget surpluses are seen to be responsible for the destruction of real wealth, at the same time forcing the non-government sector into deficit, thus eroding the sustainability of non-government balance sheets. At the same time, the real wage repression occasioned by two decades of neoliberal policies has undermined sustainability in countries like the US, where rates of accumulation were maintained through the expansion of credit, increasingly to those less and less likely to repay. In my own research, an important objective is to incorporate detailed government sector accounts into a stock-flow-consistent model (Juniper & Mitchell, 2008). In Stockhammer's more recent work (2009), a Kaleckian approach to macroeconomic modelling has clearly helped to inform his thinking about these sources of financial crisis. He argues (Stockhammer, 2009, p. 1) that:

*[t]he combination of real wage moderation and financial liberalization has led to different strategies (or at least outcomes) in different countries. While some countries (like the USA) exhibit a credit-fuelled consumption-driven growth model that comes with large current account deficits, others (like Germany and Japan) show an export-driven growth model with modest consumption growth and large current account surpluses.*



In my view, Taha made important contributions to debates of this kind about appropriate policy responses to moderate and avoid the repeat of financial crises on such a scale in the future.

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# Preface

In recent studies, the importance of financial markets has been highlighted, and financial systems have been ascribed an increasing influence over real sector development. However, most of these discussions fail to adequately integrate this relationship into a general and theory-based macro-economic model. The research questions that arise are: “Whether financial development affects real economic activities?” and “Does the structure of the financial system matter for economic growth outcome?” Thus, the main objective of this research book is to explore the interaction between financial market development and the indicators of real economy (such as investment, savings, unemployment, productivity growth, etc.) in applied context of macro-theory of economic growth for selected open economies. To identify appropriate and accommodative theories of economic growth, the book touches a wide range of issues related to orthodox and heterodox theories of economic growth, financial development, financial fragility, macroeconomic modelling, and data handling issues. We focus on the impressive transformation process that growth theories have gone through over the past several decades without overlooking the existing gaps in relation with financialisation of current models and lack of integration of financial sector into real sector macro models.

The book chooses three countries as case studies, including Hong Kong, South Korea, and the UK, and it investigates how financial systems differ across these cases given the significant differences in their market structures. The market structure for financial system and services differ between these three cases, with the most striking difference being the degrees of public sector ownership and control and stock market activities, so none of these selected markets represent homogeneity in relation to their financial sectors. The book examines channels through which the financial markets of these economies affect the real economy using time series data by applying advanced econometric techniques. One result is that almost half of this book is devoted to application of econometric theory and data characteristics to examine formal economic theory. All of the techniques illustrated in the book need

to be explicitly programmed. Accordingly, the econometric analysis and graphics in this book is carried out using EViews software. This book presents hands-on examples for a wide range of econometric techniques, from stationarity analysis to system of simultaneous equations using time series data and post-Keynesian macroeconomic model. Throughout this book, we have tried to return to the research objectives introduced in chapter 1 as often as possible.

The literature presented in this book suggests that money supply, credit availability, and stock market capitalisation are among the most important indicators of financial market development, which can help financial systems preserve overall stability to an extent. We contributed to this body of literature by undertaking important empirical research using these indicators to identify the resilience and health of financial systems if they face a sudden external shock or a financial crisis.

This book is unique in terms of integrating the concept of the theory of financial intermediaries with the post-Keynesian macroeconomic modeling. This integration accounts for the role of the banking system, credit market, and stock market capitalisation in stimulating the aggregate demand. In addition, the results of the empirical analysis provide insights into the macro-economic functioning of selected countries considering their productive but uneven financial market structures, different levels and degrees of government ownership, and state control on the financial systems.

Against this background, the book starts with emphasising the fact that while recent studies suggest that financial intermediation affects growth through various channels, a great deal of research fails to effectively examine this relationship within a general macroeconomic framework. Chapter one focuses on the absence of such attempts and provides a brief definition of financial sector development, concluding that the financial sector can be called developed if the efficiency, stability, and competitiveness of the sector improve. Consequently, research questions arise, and the main objectives of the research are discussed. The significance of this study is addressed in terms of integrating the financial sector with the real sector in a comprehensive macroeconomic model in post-Keynesian tradition, and in terms of econometric techniques that enable the research to address simultaneity issues among variables.

Chapter two moves on to early studies that highlighted the importance of finance and its importance on some growth aspects. Releasing the process of finance in different schools—neo-classical, monetarist, and Keynesians—is discussed in this chapter as well. Other issues on governing the credit and capital markets from a Keynesian point of view and Marx's ideas on the financial variables are deliberated. Post-Keynesian logic concerning the system of credit money and the accountability of commercial banks for the creation of money and credit are presented. Features

and the rationale of the McKinnon and Shaw's school on the importance of credit market and financial institution in the growth process are explored in detail.

The theory of financial intermediation is discussed in chapter three. The most common indicators of financial development are introduced along with the review of some empirical analyses. Later in the chapter, a conceptual distinction between bank-based and market-based financial markets is made. Bank-based market is an outcome of the positive role of banks in development and growth. The chapter describes how in such financial systems banks can finance development more effectively than markets in developing economies and, in the case of state-owned banks, how market failures can be overcome and allocation of savings can be undertaken strategically.

The purpose of chapter four is to review the post-Keynesian macroeconomic theories and models. In general, post-Keynesian growth theories argue that economic growth is demand-driven in the short-run and medium-run, and that investment acts as a generator to promote the other sectors within the economy and enhances economic growth. Since expectations are very important in investment decisions, post-Keynesian economists argue that profit shares should enter into the macro models to capture the role of expectations. Against this background, this chapter starts with an extensive discussion on the nature and characteristics of investment function in different approaches. Later in the chapter, the incorporation of financial variables such as interest rate, capacity utilisation, and profit rates into post-Keynesian growth models and distributions are deliberated. In line with the goal of our research, which is extending a model to take into account financial variables, the desired empirical and theoretical approach in this book is Kaleckian-Post-Keynesian models of growth and distribution. Accordingly, a Kaleckian-Post-Keynesian model incorporating financial sector and interest rates is introduced, and the characteristics of this approach are conferred.

Chapter five moves on to specify characteristics of the financial markets of three remarkable cases studies, namely South Korea, Hong Kong, and the United Kingdom. This chapter investigates how financial systems differ, and how are they are similar across these countries. Hong Kong and the United Kingdom have comparatively large, active banking systems. On the particular measure of stock market development, Hong Kong and the United Kingdom are classified as well developed; South Korea has an active but small stock market. In terms of overall financial sector efficiency, all three countries stand out and are ranked very highly. The chapter concludes that despite differences, there is an important similarity between R-banking and A-banking: in both systems, financial intermediaries are privately owned. This results in competition among agents to provide financial resources to firms. Consequently, no single agent will control whether a given investment project may go

forward, increasing the probability that, ultimately, good projects will be selected by the mechanisms of the financial system, while the good projects are selected by the government authorities in the hard budgeting type of market.

Chapter six extends a particular Kaleckian-Post-Keynesian model to include the financial sector; the model consists of behavioural functions for investments, saving, and international trade defining the goods market and the producer's equilibrium curve, which relates capacity utilisation to the distribution of income. Producer's equilibrium is not only determined only by the pricing behaviour of firms but also by a reserve army effect in a Marxian sense, reflecting the bargaining power of the workers. Interest rate is an exogenous variable for the investment process and is determined by the policy of the central bank and by the liquidity preference of commercial banks and monetary wealth holders. The chapter justifies the exogenous inclusion of financial development indicators into investment, savings, and productivity growth equations followed by the theory of financial intermediation, which fundamentally is the main contribution of this research to the literature and empirical works. The methodological approach adapted in this research is a Structural Vector Autoregression (SVAR) model that is used to examine the relationship between exogenous financial development indicators and a system of equations for key macroeconomic growth indicators, using quarterly data for periods ranging from 1990 to 2010. This was done in a series of steps and pre-analysis testing, such as stationarity, cointegration to determine the existence of long-run relationships between the variables, and Granger causality.

Chapter seven is devoted to definitions of the model variables and the process in which the data were generated. The data were obtained from the various issues of the International Financial Statistics (IFS-IMF), International Labour Organisation (ILO), World Bank Database (WDI), and Asian Development Bank (ADB) for the period of 1990:Q1 to 2010:Q4 for South Korea. All data have been seasonally adjusted, and in the case where some variables were only available on an annual basis, the quarterly data were generated using different techniques. The model variables from the system of equations, including investment, savings, income distribution, unemployment, productivity growth, and net export as endogenous variables and interest rate, capacity utilization, and indicators of financial development (monetisation ratio, domestic credit, and stock market capitalisation) as exogenous variables, as already has been explained in a previous chapter. This chapter further tests stationarity on all the variables, and then it moves on to test for cointegration applying Johansen-Juselius approach for each of the equations in the model for all three countries separately. To evaluate whether including certain variables in the VAR makes sense, a Granger causality test is carried out in this chapter as well.

Chapter eight starts with explanation about the mechanism of setting up an unrestricted VAR and presents VAR residual tests for every equation in the system for each country separately. Later in the chapter in order to be able to plot impulse response functions based on the orthogonal shocks, a Structural VAR model is estimated by taking into account short-run restrictions – the ordering of which was derived from Kaleckian-Post-Keynesian theory. The initial assumption is that the financial development variables are exogenous to the movements in growth variables. However, the imposition of exogeneity condition was tested (using the block exogeneity Wald test) in chapter seven to ensure its compatibility with our macroeconomic data.

To avoid any serious misspecification, short-run restrictions are imposed by adopting Choleski decomposition to investigate the contemporaneous relationship between the variables. The results of SVAR allow us to conclude that the post-Keynesian model seems to perform well and in line with the theoretical model. Chapter eight continues the analysis by investigating impulse responses. Since SVAR is built on the Choleski decomposition ordering, where the ordering of the variables entering the model plays a significant role, the impulse response functions are scaled by the inverse of the Cholesky factor of the residual covariance matrix to orthogonalise the impulses. The impulse response analysis in this chapter incorporates the effect of different financial regimes which shed more light on the determinants of accumulation, savings, and productivity.

In addition, this chapter investigates the effect of variance decomposition of the indicators of financial development in the case study countries that would better account for the link between financial variables and other key macroeconomic variables, and separates the variation in the indicators of financial development into the component shocks to the model. According to our empirical findings, the stock market capitalisation contribution to overall economic development progressively exceeds that of other indicators of financial development adopted in this study (monetisation ratio and domestic credit). The effects from financial development on investment savings and productivity growth have been almost observed in all cases. However, two indicators used to measure financial development, the monetisation ratio and the domestic credit availability, both as a share of GDP, have failed to show any clear effect in the United Kingdom adopting the SVAR method of estimation.

Chapter nine summarises the key research findings and discusses the possible channels through which financial sector development could potentially affect the economic growth process. The chapter further highlights contributions of this research to growth studies, discusses policy implications arising from the findings of this research, and provides directions for future research and analysis. The research ends with concluding remarks.



## WHO SHOULD READ THIS BOOK?

The intended audience for this book is the faculty, top experts in macroeconomic modelling, and higher degree research students who are interested in a broader knowledge of modern theories of economic growth and distribution. Particularly, the book may be useful for researchers who require an intermediate and upper-intermediate understanding about statistical and econometric tools, which are frequently employed in the area of finance and macro-econometrics.

Since the book reviews and covers a fairly large body of literature on financial markets and their roles in the development of real economy, it can be used for postgraduate courses covering the history of economic thoughts with a focus on issues such as capital controversy, financial markets, and economic growth. Selected chapters of this book can be used in advanced courses with a focus on Keynesian and post-Keynesian theories of growth and distribution.

Although the motivation for modelling in this book is derived from post-Keynesian growth theory and the theory of financial development, the empirical testing of these theories using time series estimation techniques may prove useful for postgraduate research students and researchers dealing with time series data from many other disciplines and schools of thought.

In order to fully comprehend the analytical materials presented in this book, readers are recommended to have introductory knowledge of time series econometrics. However, this is not essentially a prerequisite, since these materials are explained systematically in relevant chapters.

## FINAL WORD

In spite of all my efforts, errors have indubitably crept into the text; if this edition is of any guide, the numbers may be embarrassingly large. I would be grateful for suggestions for improving the organisation, style, and clarity of the manuscript.