



**UNIVERSITI PUTRA MALAYSIA**

***A TEST OF THEIR LINKAGE BETWEEN MONEY SUPPLY, LIQUIDITY, AND  
SHARE PRICES***

**CHUNG TIN FAH**

**GSM 2013 7**



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**By**

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**DOCTOR OF PHILOSOPHY  
UNIVERSITI PUTRA MALAYSIA**

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**CHUNG TIN FAH**

Thesis Submitted to the Graduate School of Management, Universiti Putra Malaysia  
in fulfilment of requirement for degree of Doctor of Philosophy

April 2013

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## DEDICATION

This thesis is dedicated to all who have helped me in my PhD journey, in particular, my wife Doris, children and parents.



Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of requirement for the degree of Doctor of Philosophy

**A TEST OF THEIR LINKAGE BETWEEN MONEY SUPPLY, LIQUIDITY AND SHARE PRICES**

By

**CHUNG TIN FAH**

**April 2013**

**Chair : Professor Shamsheer Mohamad Ramadili Mohd, PhD**

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This thesis reports new evidence of a liquidity effect from money supply changes. From evidence, the money supply increases proposed by Friedman (1969) first lead to interest rate declines and inflation increases. Yet the proposition that money supply increase leads to liquidity surge and credit expansion in the banking sector ó has not yet received unanimous empirical support.

Monetary transmission mechanism is more and more turning to the credit channel to trace how money affects prices. That money is endogenously determined as in the writings of post-Keynesian (PK) economists, will be examined in this thesis by applying a 3-equations model. The empirical tests of the theories are conducted using quarterly data over 1960 and 2011 for the G-7 countries: Canada, France, Germany, Italy, Japan, the United Kingdom (UK) and the United States (US). These tests are conducted to determine whether (1) money is endogenous (bidirectional) or exogenous (unidirectional), (2) money supply causes liquidity, and (3) liquidity causes share price to change. The empirical tests are conducted after the usual statistical tests (unit root,

Granger causality, Johansen cointegration tests and VECM) are done on whether the data are stationary and cointegrated.

The results reported in this thesis are: i) bidirectional causality exists between GDP and money supply suggesting that money is endogenous; ii) there is a difference between long-term and short-term causality as in the cases of Canada, Italy, Japan accordance with the monetarist view; iii) liquidity is found to be a significant variable in most cases except Canada 2 (in sub-period 1991:1 to 2007:1) and Italy; and iv) for most G-7 countries, there is a relationship between money supply and share returns.

Finally, the findings using the panel data estimation method show that there is a *positive* relationship between money supply growth and share returns: it is *negative* between share returns and money supply growth, due to central bank changing interest rates to curb inflation. In this context, there is a bidirectional positive relation between GDP growth and money supply growth, which supports the PK theory of endogenous money. Thus, the money-to-share-price-returns relation is founded on money being endogenous. The findings of the thesis provides a link between money supply, liquidity and the real economy, unlike the more narrower-focused asset pricing theories that purport to explain asset prices as determined by just the financial factors.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

**UJIAN KAITAN ANTARA BEKALAN WANG, HARGA SAHAM,  
KECAIRAN DAN KADAR FAEDAH**

Oleh

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Tesis ini melaporkan bukti baru berkenaan kesan kecairan daripada perubahan bekalan wang, kesan yang telah dicadangkan oleh Milton Friedman tetapi belum disahkan. Kita melanjutkan kesan kecairan dengan menguji kesan kecairan-kepada-harga saham sebagai lanjutan kepada teori yang sama. Impak bekalan wang pada kadar faedah dan kecairan telah pertama kali dicadangkan oleh Friedman (1969) dan terdapat bukti bahawa kenaikan bekalan wang membawa kepada penurunan kadar faedah dan kenaikan inflasi. Namun cadangan bahawa meningkatkan bekalan wang sepatutnya membawa kepada peningkatan kecairan - seterusnya pengembangan kredit dalam sektor perbankan - belum lagi menerima sokongan empirikal secara kesuluruhan nya.

Pakar-pakar ekonomi selepas Keynes (post-keynesian atau PK) telah mencadangkan bahawa bekalan wang dalam ekonomi ditentukan oleh tingkah laku bank-bank perdagangan ia itu apabila bank-bank menyesuaikan penciptaan wang dengan bertindakbalas kepada agen-agen ekonomi yang mengimbangkan semula portfolio susulan tindakan terhadap perubahan bekalan wang atau apabila bank-bank pusat



mengambil tindakan tangan di pasaran. Tesis ini mengkaji bagaimana, selepas mengambilkira tingkah laku penciptaan kredit bank seperti yang dicadang oleh PK, bekalan wang mempengaruhi pulangan saham dengan menggunakan model 3-persamaan. Sama ada perubahan bekalan wang berkelakuan secara endogeneity belum meluas diuji. Oleh itu, satu lagi matlamat tesis ini adalah untuk mengkaji hubungan ini antara bekalan wang endogen dan pulangan harga saham.

Ujian empirikal teori ini dijalankan menggunakan data suku tahunan sepanjang tahun 1960 hingga 2011 bagi negara-negara G-7 : Kanada, Perancis, Jerman, Itali, Jepun, United Kingdom (UK) dan Amerika Syarikat (AS). Disebabkan siri data ini adalah untuk tempoh yang panjang, perubahan rejim-dasar monetari yang signifikan ó terutamanya dalam tempoh-tempoh masa pendek di Kanada, UK dan Amerika Syarikat - diambil kira dalam ujian empirikal hipotesis asas. Kajian ini dijalankan untuk menentukan (1) sama ada wang adalah endogen (dwiarah) atau luaran (satu arah) bermakna (2) penambahan bekalan wang menyebabkan kecairan, dan (3) Perubahan dalam harga saham berasaskan bekalan wang menyebabkan kecairan.

Ujian empirikal yang dijalankan bermula dengan ujian akar unit dan ujian kointegrasi Johansen bagi kepegungan pembolehubah dan sama ada pembolehubah berkointegrasi, diikuti oleh vektor pembedahan ralat model (vector error-correction models atau VECM) dan Ujian Sebab-Musabab Granger untuk menguji sama ada terdapat satu arah atau sebab-musabab dwiarah dalam jangka masa panjang dan jangka pendek. Ujian Trivariate VAR yang dibina oleh Toda dan Yamamoto (1995) digunakan untuk menguji sama ada kecairan adalah pembolehubah penting dalam sebab-musabab antara bekalan wang dan KDNK.

Model 3-persamaan serentak dibina dan digunakan untuk meneroka kemungkinan hubungan serentak antara agregat bekalan wang dan pulangan harga saham, dan kemudiannya kesan bekalan wang atas kecairan. Ini diuji menggunakan Generalized Method of Moments (GMM), yang sesuai diguna apabila jumlah sampel ada ( $N$ ) adalah kurang dari jumlah tempoh masa ( $T$ ). Sebelum anggaran model, ujian panel akar unit persamaan yang diguna oleh Maddala dan Wu (1999) dan Choi (2001) digunakan bagi kepegunan dalam pembolehubah; Kointegrasi panel Pedroni (1997) digunakan untuk menguji jika pembolehubah adalah berkointegrasi. Ujian sebab-musabab VECM dan Granger digunakan untuk sama ada terdapat sebab-musabab antara pembolehubah didalam persamaan. VECM telah digunakan untuk mengenalpasti kesan jangka pendek dan jangka panjang.

Penemuan menunjukkan beberapa petunjuk baru yang penting dan berguna. Pertama, KDNK didapati menyebabkan perubahan bekalan wang, sebab-musabab dwiarah wujud antara KDNK dan bekalan wang mencadangkan bahawa wang adalah endogen (kecuali untuk beberapa tahun - Kanada 1, Perancis, Jerman, UK 1 dan AS1). Kedua, keputusan menunjukkan bahawa terdapat perbezaan di antara sebab-musabab jangka panjang dan jangka pendek: sebagai contoh, terdapat sokongan untuk sebab-musabab dwiarah dalam jangka masa panjang, bukti menyokong pandangan PK dalam jangka pendek, seperti dalam kes-kes di Kanada, Itali, Jepun dan Amerika Syarikat, manakala dasar monetari Perancis dan Jerman nampaknya selaras dengan pandangan monetaris. Ketiga, seperti yang ditunjukkan oleh keputusan yang teguh ujian trivariate VAR, kecairan didapati merupakan pembolehubah penting dalam semua negara kecuali Kanada 2 (dalam tempoh kecil 1991:1 untuk 2007:1) dan Itali. Keempat, ia mendapati bahawa, untuk semua G-7 negara, terdapat hubungan antara bekalan wang dan pulangan saham.

Akhirnya, penemuan yang menggunakan kaedah anggaran data panel menunjukkan bahawa terdapat hubungan yang positif antara pertumbuhan bekalan wang dan pulangan saham: ia adalah negatif antara pulangan saham dan pertumbuhan bekalan wang. Hasil kedua boleh dijelaskan sebagai kesan bank pusat menukar kadar faedah dengan tujuan mengawal inflasi. Tindakan ini membawa kepada peningkatan dalam kadar faedah dan seterusnya kepada pengurangan bekalan wang. Didapati juga, dalam konteks ini, bahawa terdapat hubungan dwiarah positif antara pertumbuhan KDNK dan pertumbuhan bekalan wang, yang menyokong teori wang endogen PK. Oleh itu, hubungan wang-kepada-harga saham-pulangan diasaskan pada wang berendogen, bererti bahawa penciptaan kredit bank adalah sumber kesan bekalan wang kepada pulangan saham. Hubungan bekalan wang kepada pulangan saham telah diuji untuk ketegapan menggunakan tiga ujian yang berbeza. Semua ujian yang dikemukakan mengesahkan hubungan.

Selain daripada bukti empirikal yang penting dalam tesis ini yang menyokong teori PK untuk negara-negara maju G-7, penemuan tesis mempunyai implikasi penting kepada kecairan dan penilaian harga saham. Bank pusat dan institusi pengambilan deposit bukan hanya pemancar dasar monetari tetapi juga penyebab penting dalam pertumbuhan wang melalui penciptaan pinjaman, yang membawa kepada perubahan bekalan wang, kecairan dan perubahan harga saham. Tesis ini menyediakan pautan kepada bekalan wang dan kecairan (faktor kewangan) dan ekonomi sebenar (KDNK, IPP) untuk pembentukan harga aset. Kefahaman yang diperoleh daripada penemuan kami membantu untuk mengembangkan pemahaman kita tentang bagaimana harga aset (saham) dibentuk dan kaitannya dengan ekonomi sebenar dan ekonomi.

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Most importantly, I would like to thank my family for their understanding, encouragement and constant patience, but for which I would not have gone this far in my studies. To my wife, children and parents: Doris, thank you for being there for me when I needed you most. I would like to give my utmost gratitude to my friends and colleagues who have assisted me in any way. Also, my appreciation to my classmates for their intellectual support and discussion throughout my candidature. To Associate Professor Law Siong Hock, for sharing the use of his software STATA and Gauss in the running of some of the programs for panel data.

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kp" hkpku jkp i " v j ku" rctv" qh" o { " nkhgou" lqwtpg { " chvgt" 62" { gctu=" hqt" v j ku. " K" y kmn" dg" gvgtpcmn { "  
grateful and obedient.

I certify that a Thesis Examination Committee has met on **24<sup>th</sup> April, 2013** to conduct the final examination of Chung Tin Fah on his thesis entitled “**A Test Of Their Linkage Between Money Supply, Liquidity, and Share Prices**” in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Degree of **Doctor of Philosophy**.

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## CHAPTER ONE

### RESEARCH PROBLEM IDENTIFICATION

#### 1.1 Introduction

The objective of this thesis is to examine the relationships among money supply, liquidity, and share prices after controlling the already-verified known effects of interest rates and inflation (Fisher, 1933). These theoretical and empirical relationships purportedly exist between the still unproven liquidity-to-money supply<sup>1</sup> at the macroeconomic level on the one hand and liquidity-to-asset prices (share prices) on the other hand. The relationship between share prices and interest rates has been fully explored in share price valuation models in finance (Black et al., 1972). However, verification of the likely link between banking liquidity at the macroeconomic level and share prices in asset markets requires that the money supply effect on banking liquidity (thus credit creation in the economy) is first proven before exploring a link among money supply, liquidity and share prices (with controls for interest rate and inflation effects). Financial economists explore the link between the real economy and financial aggregates of money supply, liquidity and interest rates as these influence asset price formation studied in finance. This thesis is therefore an attempt to link the macro-economic aggregates of money supply and banking liquidity to asset (share) prices.

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<sup>1</sup> Liquidity in this context refers to liquidity in the financial system created by deposit taking financial institutions and the central bank. The finance concept of liquidity is discussed at length on Page 36 of this thesis.

Htkgf o cpøu"3;89) suggestions of a negative money supply effect on interest rate and a positive effect on inflation have been verified in a number of studies while his suggestion of a positive money supply effect on banking liquidity has yet been supported unanimously.<sup>2</sup> The phrase liquidity effect was introduced by Friedman to describe the first of three effects from money supply changes caused by an unexpected exogenous change in the money supply (the other two being income and inflation expectation effects). The linkage between money supply and interest rates has been recognized among policy makers on the basis of evidence of its interest rate effect.

The channels of influence can be categorised as either *direct* or *indirect*. The indirect effect of money supply upon share prices is the conventional framework comprising the effects of liquidity, earnings and risk premium. Past studies made use of the Markowitz (1952) portfolio model as also explored by Brunner (1961), Friedman (1969), Friedman and Schwartz (1963) and Cagan (1972). In this model, an investor reaches an equilibrium position in which, in general, she holds a number of assets including money in his portfolio of assets and any unexpected changes in money has profound influences on banking credits.

The *direct* channel, using the theoretical framework presented by monetarists about the relationship between money supply and asset prices (stock price being a subset of asset prices) is from the quantity model (Sprinkel, 1964) or the more sophisticated portfolio theory model (Cooper, 1972). An increase in money supply is expected to increase excess supply of money balance, which in turn leads to excess demand for

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<sup>2</sup> The empirical literature on the liquidity effect dates back at least to Cagan and Gandolfi (1969), Gibson (1970a,b), Leeper and Gordon (1992), Goodfriend (1997), Pagan and Robertson (1995), Christiano, Eichenbaum and Evans (1996), Hamilton (1997), Thornton (2001) Carpenter and Demiralp (2006) and Thornton (2007).



shares. Share prices are expected to rise as a result. This channel of interaction has been described as a direct channel for the first time in Sprinkel (1964). As the supply of money expands, the portfolio of desired versus actual cash holding is thrown out of balance. Since the stock of money must be held by the agents, the prices of other assets and goods and services for consumption are bid up to a new equilibrium level. This theory is still in vogue although the question of how the money supply influences through what channel(s) influence the asset prices has newer interpretations, as for example, in Effa, Ariff and Khalid (2013; 2011) for banking assets.

The motivation for this thesis is therefore to explore and provide answers to three related questions: (i) Is money supply endogenous or exogenous; (ii) Is there a positive money-to-liquidity effect on share returns? (iii) Is there a significant positive effect of liquidity on share returns? In the process of carrying out our research, this thesis will link the real economic aggregates (using IPI as a proxy for earnings) and the financial aggregates (money supply, interest rates and liquidity) to asset prices (share prices) in G-7 countries.

### **1.1.1 Nature of the Study**

This study is a quantitative exploratory attempt using available data applying correlation and regression analyses. Therefore, the research design in this study would also include causality tests and comparative analyses. The reason for employing the causal comparative design is that the independent variables of the study cannot be manipulated experimentally, so it is not possible to investigate the relationship between the dependent variable and the independent variables through experimental designs.

## 1.2 Research Questions

This thesis aims to answer three main research questions.

*Money Supply and GDP:* Do changes in money supply cause changes in GDP, which is evidence in support of money exogeneity? This test will be done for each of the G-7 countries over test period. This research question has been addressed for some of the G-7 countries but not all. We cover a very long period including a period since 2005, involving the years after the Global Finance Crisis (GFC).

*Money Supply and Liquidity:* Htkgf ocpøu" rtqrqukvkqp" vjcv" o qpg{" uwr rn{" ecwugu" liquidity is the second research question. We also test whether liquidity causes money supply by testing for evidence of bidirectional causality.

*Share Price and Liquidity:* Credit expansion (shrinkage) from changes in banking liquidity cause earnings to rise (fall) and earnings in turn causes share prices to rise (fall). As in the earlier hypotheses, we also test for bidirectional causality between share price and liquidity to verify for money endogeneity.

In addressing the above questions, the thesis will examine on how share returns, money supply and liquidity are linked together in a macroeconomic framework. The attempt to address this question forms the central focus of this thesis. This thesis will use a system of equations approach to answer the question of simultaneous relationship among share price returns, money supply and liquidity.

Subsidiary questions are:

i) What are the expected and the empirical relationships between the growth of the money supply and share returns? To reinvestigate the relationship between money supply and share returns to ascertain whether dependence can be established and in which direction the causality is manifested.

ii) Is there a long-run relationship and what are the short-run dynamics like, using the later econometric techniques? In order to investigate the causal relationship between share returns and money supply, one must determine the existence and direction of causality between the unexplained variations in both series.

iii) To explore the relationship between the endogeneity of money and the pricing of share returns. Following answers to the above question, to relate different variants of money supply to share returns: To investigate and relate variants of money supply to share returns within the tests of endogeneity or exogeneity.

iv) What is meant by liquidity and how is it to be measured? In the financial press and other market commentaries by analysts, asset price bubbles are sometimes attributed to excess liquidity in the financial system using such metaphors as the financial markets being awash with liquidity or liquidity sloshing around. However, the precise meaning can only be understood as the rate of growth of aggregate money which will be reflected in the rate of growth of aggregate balance sheets of financial intermediaries. The financial intermediaries hold surplus capital and they will attempt to find ways in which to they can employ their surplus capital.

v) What are the expected and the empirical relationships among inflation, income, interest rates, share price returns, money supply and liquidity?

The financial economics literature is replete with a considerable number of studies that examine share price behaviour. In this, an important area of focus that has received increasing attention from economists and policy makers is to understand the dynamic linkages between macroeconomic variables and asset (share) returns.

Few events are watched by market participants with more interest than decisions of the monetary authority (especially the Federal Reserve) regarding monetary policy. This interest stems from a significant impact of news about the Federal Reserve policy on asset prices. For example, Fleming and Remolona (1997) show that federal funds target rate announcements tend to cause large price changes in the US Treasury market. Fair (2002) reports that more than 30 percent of identifiable events that caused a large immediate price change in the stock market were monetary announcements. Bernanke and Kuttner (2005) show that an unexpected 25-basis point cut in the federal funds target rate leads to a one percent increase in the level of stock prices on average.

Policymakers recognize that the share market is an important conduit of monetary policy that can be used to influence real economic activity in the transmission mechanism. Share prices affect the real economy through a number of channels. new capital and invest, and through the wealth effect on consumption and economic growth.

In tracing the impact of monetary policy, the first step in the channels, however, is the effect of monetary policy on the share market, through bank credit from money changes. A review of Federal Open Market Committee (FOMC) meeting transcripts shows that the Fed officials are often concerned about the possible impact of policy actions on the share market and the resulting effects on consumption and investment.

Therefore, policy makers are keen to understand what determines the magnitude of the significant cyclical variation in the impact of monetary policy on share prices. In these studies, the size of the response of share returns to monetary shocks is more than twice as large in recessions and tight credit conditions than in good economic times.

In the finance literature share valuation model, macroeconomic forces may have systematic influences on share prices via their influences on expected discounted future cash flows. Alternatively, a study of the relations between them could be motivated using the arbitrage pricing theory (APT) model developed by Ross (1976). In the financial economics literature, the standard aggregate demand and aggregate supply (AD/AS) framework also allows for the roles of equity markets especially in the specification of money demand (Friedman, 1988). This linkage has also been labelled as the monetary transmission mechanisms (Mishkin, 1998) (please see Section 2.7). These models provide a basis for the long-run relationship and short-run dynamic interactions among macroeconomic variables and stock prices. The main emphases have generally been on asset pricing, return predictability, stock market efficiency and equity price channel of monetary transmission mechanisms.

The motivation of this thesis is to make a contribution to the literature on share market ó macroeconomic variable linkages via monetary transmission. The specific issues that we attempt to address are monetary transmission to the equity market mechanism via bank credits to share price.

### 1.2.1 General Framework of Equity Pricing Analysis

In an informationally efficient market, excess returns (on share price) are possible only if shares are mispriced, probably because the current price does not reflect unanticipated future growth from positive net present value, NPV, projects or a sudden change in interest rate policy leads to changed corporate investments. In the 1940s and 1950s, prior to the development of the Capital Asset Pricing Model, the dominant paradigm for estimating expected returns presupposed that the return that investors required of an asset depended on the manner in which the asset was financed. There was a cost of equity capital and a cost of debt capital and the weighted average of these costs ó based on the relative amounts of debt and equity financing ó representing the average cost of capital. A popular method of estimating the cost of equity is the Gordon and Shapiro (1956) moden0" k p " kv. " kh " c " hkt o øu " g z r g e v g f " f k x k f g p f " r g t " u j c t g " v q " infinity is  $D$ , and the share price of the firm is  $P$ , then the cost of equity capital  $r$  is the dividend yield plus the dividend growth rate:  $r = D/P + g$ . However, Modigliani and Miller have shown that in a frictionless world, the value of the firm does not depend on how it is financed. This means the cost of equity capital is likely determined by the cost of capital of the assets rather than the other way round.

While the most common aspect of equity valuation is their payment of dividends, another typical characteristic is that the holders of the equity own a portion of the firm,

and this ownership can be of value. The book value of the firm, which represents a

enck o " qp" vjg" hkt o øu" cuugvu." oc {" dg" o qtg" ko rortant to the shareholder than a token dividend. In the broadest sense, ownership of a stock gives the holder a claim on the assets of the firm and all cash flows that these assets might generate. The value of the share should be worth at least the current book value per share since this amount represents a claim against existing assets. This accounting model is so well known that it need not be defined here: (Ohlson, 1995).

The works of Gordon and Ohlson on equity valuation are widely recognised as the theoretical literature for equity valuation. It indicates that the current price of a security (P) is a function of a number of variables,  $P = f(D, G, V, L, S)$ , where D is dividends, G is growth in dividends (or earnings), V is variability of earnings, L is leverage and S is size.

The market system can be described as

$$(v_1, \dots, v_n) = f(x_1, \dots, x_m) \quad (1.1)$$

where  $v_i$ , ( $i = 1, \dots, n$ ) are the values of the assets whose values are determined by the market, and  $x_j$  ( $j = 1 \dots m$ ) are the stimuli variables that influence the values.

Lintner (1969) has defined these stimuli varicdngu" cu" dgkpi" vjg" kpfkxkf wcnøu risk aversions, assessments both of the mean and variance of future prices, and wealth. To date, the main focus of the empirical researcher in the field of finance has been to determine what measurable quantities would serve either as proxies or determinants of these stimuli.

The empirical literature has focused nearly exclusively on various formulations of the set of stimuli variables. The major thrust has been the testing of whether past and/or present dividend and/or debt policies have been significant in their effect upon the assessments of future values and thus upon present security values. Nearly all emphasis has been in the formulation of the stimuli variables, while the reaction variable has appeared in the published literature solely as a transformation of a single firm's value such as share return.

Many of the earlier models on equity pricing are premised on an ideal (perfect) capital market as conditioned by: i) Capital markets are frictionless (no taxes and transaction costs); ii) all market participants share homogeneous expectations; iii) all market participants are atomistic so they are price takers; iv) expected returns are fixed and known; v) market participants are rational. This led to the next stage of research on evaluating the impact of market imperfections (such as taxes and bankruptcy costs) upon the financing and distribution problems. Indeed, many of the interesting areas of finance necessitate the study of capital markets which are imperfect (bid-ask spread effects, non-marketable assets such as human capital, and anomalies such as events, value effect, firm size, day of week effect and momentum). This led to the CAPM, and with simpler assumption, still later it led to the Arbitrage Pricing Theory (Ross, 1976).

Investors are also expected to behave rationally, which implies that investors seek to maximize a utility function over a number of arguments. It is expected that irrational investor would lose out to rational investors, so that in the long run equilibrium, the rational investors' actions would dominate. This irrationality assumption is relaxed in the works of Summers (1986), Black (1986), deBondt and Thaler (1985), Shefrin and



Stratman (1985), and new pricing models have been developed to take into account irrational or noise traders in the equilibrium pricing relationships (DeLong et al., 1987).

The general problem for the empirical researcher in finance is the specification and estimation of the following structure:

$$(v_{1j} - \beta_j x_j - \beta_0) = f(\beta_1, \dots, \beta_m) + \epsilon_j \quad (1.2)$$

where  $v_{1j}$  is the return on security  $j$ ,  $x_j$  is the vector of variables used to explain the return,  $\beta_j$  is the vector of parameters to be estimated,  $f(\beta_1, \dots, \beta_m)$  is a function of the parameters  $\beta_1, \dots, \beta_m$ , and  $\epsilon_j$  is the error term. ( $j = 1, \dots, m$ )

The issue that this thesis focuses on is whether the specification of (1.2) should be such that  $j$  is univariate (as in ordinary cross-sectional least squares regression) or is multivariate (to be expanded into a system of equations). The bivariate relation between security prices and accounting earnings is one of the most explored areas of accounting and finance research. A variety of models have been proposed to characterize this relationship with either security returns (e.g., Ball and Brown, 1968) or earnings (e.g., reverse regressions) as the dependent variable. Despite the variety of specifications, one common feature shared by these prior studies is the adoption of a single-equation estimation approach and most such studies focused on risk that is priced in the market. There may be factors that accounted for substantial return co-movements like macro variables but those are not priced. Although these non-priced factors do not determine the average returns, they are nonetheless important for investors who wish to control portfolio risk.

The model developed and tested in this thesis views three items as involved in this relation: cross-sectional asset price changes, money supply and liquidity changes, all of them as being jointly determined. Hence, the popular approach in finance of treating the asset prices as formed by stimuli variables mostly by financial factors can be expanded to include the real sector and the monetary sector variables as being linked together. This represents a new approach to understanding the bivariate price earnings relation and thus econometrically captures two important features.

First, share price changes, money supply changes and liquidity changes are each influenced by factors that do not affect the others. Second, share price changes, money supply changes and liquidity changes are jointly influenced by a set of informational variables that are difficult to specify explicitly. As a result, the traditional single equation approaches potentially suffer from under-identification and partially biased formulae. Empirical tests for endogeneity indicate that share price changes, money supply and liquidity changes act as if they are endogenously determined. A system of simultaneous equations is introduced to mitigate this biasness. This thesis expects that the sensitivity coefficients of money supply, liquidity and share price return obtained from this approach will be larger than those obtained from single-equation approaches (cross-section or pooled time series).

For many years, the economic impact of changes in the money supply has been debated in academia. Research by Brunner, Friedman-Schwartz, Tobin and others has established that a relationship exists between changes in the money and changes in the prices of other assets held in an investor's portfolio. Economists disagree about appropriate response of monetary policy to such asset price booms (Bordo and Wheelock, 2004). Some argue that financial markets are inherently volatile and that

market prices often stray from fundamentals, suggesting that policy makers could improve welfare by deflating asset price booms, especially if sudden asset price declines are likely to depress economic activity (Bordo and Wheelock, 2004). Other economists claim that financial markets process information efficiently or that policy makers usually cannot determine when assets are mispriced and, hence, that they cannot enhance aggregate welfare by reacting to asset price movements (contrary to EMH). These episodes have fascinated researchers and their research into these phenomena have yielded important information about the transmission mechanism of monetary policy to asset prices, financial markets and asset price booms. Generally, there has been wide agreement among economists that changes in the quantity of money have important influences on the movement of share prices (assets).

### **1.2.2 Efficient Market Hypothesis, Portfolio Theory and Capital Asset Pricing Model (CAPM)**

The financial models discussed above serve as the precise statements or models of market fundamentals in finance. An important issue in financial markets is the relationship between market prices and fundamental values. Do market prices reflect fundamental value only? If there are deviations from fundamental value, are the deviations large? Does the market incorporate all relevant information in forming expectations that determine fundamental value? A related issue, which has been studied extensively over the last 30 years, concerns the informational efficiency of financial markets. If financial markets do not incorporate all relevant information in the formation of expectations, traders can act to earn arbitrage profits or excess profits on the basis of other available information. However, the availability of this information does not account for or define the relationship between market prices and fundamental value.

It is possible to have markets in which all information is reflected in current prices ó that is, expectations are formed rationally ó and the market price can still deviate substantially from fundamental value. The literature on the January effect, the size effect and the price-earnings ratio effect is considerable. The principal findings are that stock returns tend to be high in January for small stocks, and a trading strategy based on price-earnings ratios (buy shares with the lowest price-earnings ratio) can outperform the market. DeBondt and Thaler (1985, 1987) and Lehmann (1990) have presented profitable trading strategies that suggest overreaction in the stock market.

According to Fama (1970), efficient market hypothesis means that securities prices reflect information. Fama made a distinction between three forms of EMH: (a) the weak form, (b) the semi-strong form, and (c) the strong form. However, it is the semi-strong form of EMH that has formed the basis for most empirical research.

The strong form suggests that securities prices reflect all available information, as well as available private information. Seyhun (1986, 1998) provides sufficient evidence that insiders profit from trading on information not already incorporated into prices. Hence the strong form does not hold in a world with an uneven playing field. The semi-strong form of EMH asserts that security prices reflect all publicly available information. There are no undervalued or overvalued securities and thus, trading rules are incapable of producing superior returns. When new information is released, it is fully incorporated into the price rather speedily. The availability of intraday data enabled tests which offer evidence of public information impacting share prices within minutes (Patell and Wolfson, 1984, Gosnell, Keown and Pinkerton, 1996). The weak form of the hypothesis suggests that past prices or returns reflect future prices or returns. The inconsistent performance of technical analysts suggests this form holds.

While the semi-strong form of EMH has formed the basis for most empirical research, recent research has expanded the tests of market efficiency to include the weak form EMH. There continues to be disagreement on the degree of market efficiency or inefficiency. This is compounded by the joint hypothesis problem. Tests of market efficiency must be based on an asset-pricing model. If the evidence is against market efficiency, it may be because the market is inefficient, or it may be that the model is incorrect.<sup>3</sup>

The foundations for the development of asset pricing models were laid by Markowitz (1952) and Tobin (1958). Early theories suggested that the risk of an individual security is the standard deviation of its returns ó a measure of return volatility. Thus, the larger the standard deviation of returns, the greater is the risk of an asset. An portfolio of securities, the portfolio. In the landmark portfolio theory of Markowitz (MPT), the concept of diversification was operationalised using portfolio variances and co-variances between pairs of constituent securities. Markowitz was the first to develop a specific measure of portfolio risk and to derive the expected return and risk of a portfolio. The Markowitz model generates the efficient frontier of portfolios and the investors are expected to select a portfolio, which is the most appropriate for them, from the efficient set of portfolios available to them. Tobin (1958) suggested a course of action to identify the appropriate portfolios among the efficient sets.

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<sup>3</sup> However, Fama (1991) expanded the concept of the weak form to include predicting future returns with the use of accounting or macroeconomic variables. The evidence of predictability of returns provides an argument against the weak form.

Y jkng" rqtvhqkq" vjgqt{ " fgcnv" y kvj" vjg" kpfkxkfwcno" rqtvhqkq" fgekukqp, it provided the intuition and the basis for an equilibrium asset pricing model ó the capital asset pricing model (CAPM) developed by Sharpe (1964), Lintner (1965) and Mossin (1966). The MPT did not provide a pricing model as its scope was limited to normative prescriptions as to how an investor should operate in order that a risk averse, wealth maximizer might maximize his or her utility. Sharpe (1964) developed a computationally efficient method, the Single Index Model, where the return on an individual security is related to the return on a common index. The common index may be any variable thought to be the dominant influence on stock returns and it need not be a stock index (Jones, 1991). By identifying risks with the dispersion of returns, it is possible to develop mean variance efficient sets with the introduction of risk-free borrowing and lending opportunities, resulting in a separation theorem, which can be derived in mean-standard deviation space. The capital asset pricing model assumes that all investors maximize utility of terminal wealth defined over the mean and variance of portfolio returns and that all investors have unconditional homogeneous expectation of means variances and co-variances. The capital market is assumed to be perfect.

Essentially, the only risk that is priced at equilibrium in the capital market is covariance or systematic risk (risk that cannot be diversified away). A feature underlying many finance theories is that the reward or expected return is a linear function of several risk factors, following the general specification in (1.2). Since much of the essence of finance dealt with risk and its interaction over time, this became the focal point of asset pricing theories in an efficient market neglecting to study the link asset prices have to i) real economy and ii) monetary aggregates. Thus, a wide class of financial models are of the form:

$$R_i = R_f + \beta_1 (R_j - R_f) + \beta_2 (R_{j+1} - R_f) \dots \dots \quad (1.3)$$

These are models that are based on: i) theoretical economic considerations (market equilibrium pricing model) and ii) models that are empirically derived as in Fama and French (1994) (*ad hoc* empiricism):  $R_i$ = security i;  $R_j$ = factor index;  $R_f$ = risk-free rate

The capital asset pricing model (CAPM) developed by Sharpe (1964), Lintner (1965) and Mossin (1966) relates the expected rate of return of an individual security to a measure of its systematic risk. The CAPM has become an important tool in finance for assessment of cost of capital, portfolio performance, portfolio diversification, valuing investments and choosing portfolio strategy among others. The last half-century has witnessed the proliferation of empirical studies testing the validity of the CAPM. A growing number of studies found that the cross-asset variation in expected returns could not be explained fully by systematic risk alone. Because of the failure of market beta alone to explain all cross-sectional variation in security returns, multifactor models emerged. These models incorporate fundamental variables such as size and price-to-earnings ratio in addition to the market beta. Therefore, a variety of models has been developed to predict asset returns.

Theoretical models include the general equilibrium (macro and micro) pricing theories, the Sharpe-Lintner CAPM, Ross's arbitrage pricing theory, Merton's intertemporal CAPM, and Breeden's version of the consumption-based CAPM. The principal results of these models are expressions for equilibrium expected returns, and none of them directly addresses the problem of determining equilibrium asset prices. In fact, these models provide very little insight into the determination of equilibrium asset prices. Take, for example, the Sharpe-Lintner CAPM; its basic result is the

following statement about equilibrium expected returns:  $E(R_i) = R_f + \beta_i (E(R_m) - R_f)$ , where the expected return on the market and the risk-free rate are determined outside the model. The empirical ones (Market Based Research) include multi-factor models and Fama-French model of Momentum Trading.

### 1.3 Usefulness and Significance of Study

The pricing of assets such as shares and bonds that trade in the capital market is one of the most important areas of finance and investment disciplines that affects the economic lives of both individuals and organizations. Therefore, the findings of this research especially on the causal impact that monetary growth has on fluctuations in share prices and the significance of these fluctuations on real activity, ought to have years after the GFC, policymakers have been confronted with unusual developments in share prices, during strong booms and busts, making it more important to understand what determine share price movements, to interpret the message they contain about the future and to incorporate them into policy decisions. We intend to study the major markets, namely the G-7 markets since these markets are known to be efficient, so that we may add other efficient markets, if feasible.

The outcome of this study can change (i) the way in which central banks conduct their monetary policies with different monetary framework, (ii) individual and institutional investors make investment decisions, (iii) the process that mutual funds select their portfolio managers and investment advisors, and (iv) capital budgeting and capital expenditure decisions of public corporations. These changes in turn could lead to



significant changes in the resource allocation, potential outputs and composition, and in the employment structure of the economy.

The outcome of this study can also assist investors and portfolio managers to identify the state of the share market and make appropriate investment decisions from a top-down approach in asset selection. The top-down approach based on current knowledge could be improved by the linked models used in this thesis and tested in this thesis. Performance measurement is especially important in mutual fund performance disclosures; and the outcome of this study can provide the real sector or monetary sector impact on mutual fund performance to assess performance in connection with the amount of risk taken.

#### **1.4 Organization of Thesis**

The objectives of this thesis are (i) to contribute to the body of knowledge about asset pricing, in particular the role of macroeconomic variables of money supply and liquidity for asset price formation using a 3-equations model and (ii) to conduct robustness tests about causality, response (coefficients) and effect propositions found in the mainstream finance literature.

All data for variables are downloaded from the Datastream database and the macroeconomic variables are verified against the International Financial Statistics (IFS) database of the International Monetary Fund (IMF) for consistency to ensure that there are no errors. The empirical analysis is conducted using quarterly data for different sample periods. It is important to note that income is included as an explanatory variable in some models specified here. Real gross domestic product

(GDP) is used as a proxy for income and only quarterly data is available for income. This thesis hopes to make a modest original contribution to the financial economics literature using more recent statistical techniques, such as system of equations, VAR, VECM, panel modelling and cointegration to obtain more accurate and robust test results hitherto not possible. The newer methods are likely to yield more robust test statistics for a comparison to earlier studies done by researchers.

In Chapter 2, the reader will find a survey of a literature review on asset pricing theories beginning with dividend, earnings, and the inclusion of more macro factors such as money supply, liquidity, industrial production index, GDP and inflation in multifactor models. The survey will end with a discussion of the transmission mechanism of money to share prices. Chapter 3 is a summary of the monetary institutions, policies and regimes in each of the G-7 countries. The research questions, hypotheses, methodology and models are developed in Chapter 4. A description of the data used in this thesis is also provided in this chapter. Chapter 5 is devoted to the discussion of the results of the empirical tests. It presents summary results obtained from cointegration and vector error-correction models to determine whether money supply is exogenous or endogenous. Prior to doing those two tests, the stationary property of the variables is examined and the results discussed and presented.

Chapter 6 contains the detailed results of the model developed in Chapter 4, which tests the effects of the money supply on the share price index. Panel unit root test are performed and the results analysed to examine whether the variables are stationary. A description of the panel cointegration tests and the results are also included in this chapter. Vector error-correction models are determined if the variables used in the

simultaneous equations model developed in Chapter 4 cause the endogenous variables.

Results of the robustness tests are also included in the chapter.

The thesis ends in Chapter 7 with a summary of the main findings to show the linkage of these findings. The chapter also identifies the limitations of this research and the scope and avenue for future research.



## REFERENCES

- Abdullah, D.A. and Hayworth, S.C. (1993). Macroeconometrics of stock price fluctuations. *Quarterly Journal of Business and Economics*, 32(1): 49-63.
- Acharya, V.V. and Pedersen, L.H. (2005). Asset pricing with liquidity risk. *Journal of Financial Economics*, 77: 375-410.
- Adler, M. and Dumas, B. (1983). International portfolio choice and corporation finance: A synthesis. *Journal of Finance*, June 38: 925-84.
- Adler, M. and Lehmann, B. (1983). Deviations from purchasing power parity in the long run. *Journal of Finance* 38: 1471-1487.
- Ajayi, R.A. and Mougoue, M. (1996). On the dynamic relation between stock prices and exchange rates. *Journal of Financial Research*, 19(2): 193-207.
- Ali, A. and Zarowin, P. (1992a). Permanent versus transitory components of annual earnings and estimation error in earnings response coefficients. *Journal of Accounting and Economics*, 15:259-264.
- Ali, A. and Zarowin, P. (1992b). The role of earnings levels in annual earnings-returns studies. *Journal of Accounting Research*, 30: 286-301.
- Altissimo, F., Gaiotti, E. and Locarno, A. (2001) Monetary analysis in the Bank of Italy prior to EMU: The role of real and monetary variables in the models of the Italian economy. In H.-J. Klockers and C. Willeke (eds.), *Monetary Analysis: Tools and Applications* (European Central Bank, Frankfurt, Germany).
- Amihud, Y. (2002). Illiquidity and stock returns: cross-section and time series effects. *Journal of Financial Markets*, 5:316-56.
- Amihud, Y., Christensen, B.J. and Mendelson, H. (1993). Further evidence on the risk-return relationship. *Working paper, New York University, New York, NY*.
- Amihud, Y. and Mendelson, H. (1986). Liquidity and stock returns. *Financial Analysts Journal*, 42: 43-48.
- Amihud, Y. and Mendelson, H. (1980). Dealership market: Market-making with inventory. *Journal of Financial Economics*, 8: 316-53.
- Ando, A. and Modigliani, F. (1985). Aggregate Implications and Tests. *American Economic Review* 53: 556-84.
- Andrews, D.W.K. (1993). Tests for Parameter Instability and Structural Change with Unknown Change Point. *Econometrica*, 61: 821-856.
- Ane, T. and Geman, H. (2000). Order flow, transaction clock, and normality of asset returns. *Journal of Finance*, Vol.55: pp. 2259-84.
- Arellano, M. and Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Review of Economic Studies*, 58.
- Ariff, M., Farrar, J. and Khalid, A.M. (eds) (2012). *Regulatory Failure and Global Financial Crisis*. Edward Elgar Ltd UK and USA.
- Ariff, M., et al (2008) *Capital Markets in Malaysia : Corporate Finance, Investment Management, Banking and Corporate Governance*. McGraw-Hill Kuala Lumpur, Malaysia.
- Arnold, I. J. and Roelands, S. (2010). The demand for euros. *Journal of Macroeconomics*, 32(2): 674-684.
- Attfield, C.L.F. and Demery, D. (1981). *Rational expectations in macroeconomics: An introduction to theory and evidence*. Oxford U.K: Basil Blackwell.

- Badaruddin, E., Ariff, M. and Khalid, A. (in press). Exogenous or endogenous money supply: Evidence from Australia. *Singapore Economic Review*, 57.
- Ball, R. and Brown, P. (1968). An empirical evaluation of accounting income numbers. *Journal of Accounting Research*, 6: 159-178.
- Baltagi, B.H. (2008). *Econometric Analysis of Panel Data*. Chichester: John Wiley & Sons, Ltd.
- Balvers, R.J., Cosimano, T.F. and McDonald, B. (1990). Predicting stock returns in an efficient market. *The Journal of Finance*, 45:1109-1128.
- Banerjee, A. (1999). Panel data unit roots and cointegration: An overview. *Oxford Bulletin of Economics and Statistics*, 61: 607-629..
- Bansal, R., Dittmar, R.F. and Lundblad, C.T. (2005). Consumption, dividends, and the cross section of equity returns. *The Journal of Finance*, 60:1639-1672.
- Bansal, R., Hsieh, D.A. and Viswanathan, S. (1993). A new approach to international arbitrage pricing. *The Journal of Finance*, 48: 1719-1747.
- Barth, M., Beaver W. and Wolfson, M. (1990). Components of earnings and the structure of bank share prices. *Financial Analysts Journal*, 46: 53-59.
- Banz, R.W. and Breen, W.J. (1986). Sample-dependent results using accounting and market data: Some evidence. *Journal of Finance*, 41: 779-793.
- Banz, R. W. (1981). The relationship between return and market value of common stocks. *Journal of Financial Economics*, 9: 3-18.
- Barro, R. J. (1977). Unanticipated Money Growth and Unemployment in the United States. *American Economic Review* 67: 101-115.
- Baskin, J. (1989). Dividend policy and the volatility of common stock. *Journal of Portfolio Management*, 15(3): 19-25.
- Basu, S. (1995). *The conservatism principle and the asymmetric timeliness of earnings*. Unpublished manuscript (CUNY, Baruch College, New York, NY).
- Basu, S. (1983). The relationship between earnings yield, market value and the return for NYSE common stocks. *Journal of Financial Economics*, Vol. 12: pp. 126-56.
- Basu, S. (1977). Investment performance of common stocks in relation to their price-earnings ratios: A test of the efficient market hypothesis. *Journal of Finance*, 32: 663-682.
- Basmann, R.L. (1963). The Causal Interpretation of Non-Triangular of Economic Relations. *Econometrica*, 31 (July): 439-448.
- Beaver, W.H. and Ryan, S. C. (2000). Biases and lags in book value and their effects on the ability of the book-to-market ratio to predict book return on equity. *Journal of Accounting Research*, Vol. 38, No. 1:127-148.
- Beaver, W., Clarke, R. and Wright, W. (1979). The association between unsystematic security percentage change in prices and the magnitude of earnings forecast errors. *Journal of Accounting Research*, 17: 316-340.
- Beaver, W., Eger, C., Ryan, S. and Wolfson, M. (1989). Financial reporting and the structure of bank share prices. *Journal of Accounting Research*, 27: 157-178.
- Beaver, W., Lambert, R. and Morse, D. (1980). The information content of security prices. *Journal of Accounting and Economics*, 2: 3-28.
- Beaver, W., Lambert, R. and Ryan, S., (1987). The information content of prices: A second look. *Journal of Accounting and Economics*, 9: 139-158.
- Berger, A. N. and Bouwman, C. H. S. (2008). Bank liquidity creation. *Review of Financial Studies*.
- Bernanke, B. S. and Kuttner, K.N. (2005). What explains vjg"uvqem" o ctmgvøu"tgcevkqp" to Federal Reserve policy? *Journal of Finance*, 60: 1221-1257.

- Bernanke, B.S. and Mihov, I. (1998). The liquidity effect and long-run neutrality. *NBER Working Paper No. 6608*.
- Bernanke, B.S. and Mihov, I. (1995). Measuring monetary policy. *NBER Working Paper No. 5145*.
- Bernanke, B.S. and Gertler, B.M. (1995). Inside the black box: The credit channel of Monetary policy transmission. *Journal of Economic Perspectives*, 9: 27-48.
- Bernanke, B.S. and Blinder, A. (1992). The federal funds rate and the channels of monetary transmission. *American Economic Review*, 82: 901-921.
- Bernanke, B.S. and Blinder, A.S. (1988). Credit, Money, and Aggregate Demand. *American Economic Review* 78: 435-439.
- Bernanke, B.S. (1983). Nonmonetary effects of the financial crisis in the propagation of the Great Depression. *The American Economic Review*, 73: 257-76.
- Billings, B. K. and Morton, R.M. (2001). Book-to-market components, future security returns, and errors in expected future earnings. *Journal of Accounting Research*, Vol. 39, No. 2: 197-214.
- Black, F. (1993a). Beta and return. *Journal of Portfolio Management*, 20: 8-18.
- Black, F. (1993b). Estimating expected return. *Financial Analysts Journal*, 49: 36-38.
- Black, F., Jensen, M.C. and Scholes, M.S. (1972). The capital asset pricing model: Some empirical tests. In M.C. Jensen, *Studies In The Theory Of Capital Markets*, Praeger Publishers Inc., 1972.
- Black, F. (1986). Noise. *Journal of Finance*, 41: 529-543.
- Black, F. and Scholes, M.S. (1974). The effect of dividend yield and dividend policy on common stock prices and returns. *Journal of Financial Economics*, 1.
- Black, F. and Scholes, M.S. (1973). The pricing of options and corporate liabilities. *Journal of Political Economy*, 81.
- Blinder, A.S. and Stiglitz, J.E. (1983). Money, Credit Constraints, and Economic Activity. *American Economic Review* 73: 297-302.
- Bollerslev, T., Engle, R.F. and Nelson, D. (1994). ARCH models. In R. F. Engle and D.L. McFadden (eds.), *Handbook of Econometrics*, Vol. IV, North Holland, Amsterdam, pp. 2959-3038.
- Bollerslev, T., Engle, R.F. and Wooldridge, J.M. (1988). A capital asset pricing model with time varying covariances. *Journal of Political Economy*, Vol. 96: pp. 116-31.
- Bordo, M.D. and Wheelock, D.C. (2004). Monetary Policy and Asset Prices: A look back at Past US Stock Market Booms. *Federal Reserve Bank of St. Louis Review*, 86( 6):19-44.
- Bordo, M.D. and Schwartz, A.J. (1997). Monetary Policy Regimes and Economic Performance: The Historical Record. *NBER Working Paper No. 6201*.
- Bos, T. and Newbold, P. (1984). An empirical investigation of the possibility of stochastic systematic risk in the market model. *Journal of Business*, Vol. 57: pp. 35-41.
- Breeden, D., Gibbons, M. and Litzenberger, R. (1989). Empirical tests of the consumption-oriented CAPM. *Journal of Finance*, 44: 231-262.
- Breeden, D. (1979). An intertemporal asset pricing model with stochastic consumption and investment opportunities. *Journal of Financial Economics*, 7: 265-296.
- Brennan, M.J., Wang, A.W. and Xia, Y. (2004). Estimation and test of a simple model of intertemporal capital asset pricing. *The Journal of Finance*, 59: 1743-1775.
- Brennan, M. J., Chordia, T. and Subrahmanyam, A. (1998). Alternative factor specifications, security characteristics and the cross-section of expected stock returns. *Journal of Financial Economics*, 49: 345-373.

- Brennan, M. J. and Subrahmanyam, A. (1996). Market microstructure and asset pricing: On the compensation for illiquidity in stock returns. *Journal of Financial Economics*, 41: 441-646.
- Breitung, J. (2000). The local power of some unit root tests for panel data. In B.H. Baltagi, ed. *Advances in Econometrics, Vol 15, Nonstationary Panels, Panel Cointegration, and Dynamic Panels*: 161-178, JAI Elsevier, Amsterdam, The Netherlands.
- Brennan, M.J. (1970). Taxes, market valuation, and financial policy. *National Tax Journal*, 3(3): 417-429.
- Brooks, R., Faff, R. and Lee, J. (1994). Beta stability and portfolio formation. *Pacific-Basin Finance Journal*, Vol. 2: pp. 463-79.
- Brown, S.J. and Otsuki, T. (1990). Macroeconomic factors and the Japanese equity markets: the CAPMD Project. In E.J.Elton and M.Gruber (Eds.), *Japanese Capital Markets*. New York: Harper and Row.
- Brown, S.J. (1989). The number of factors in security returns. *The Journal of Finance*, 44: 1247-1262.
- Brown, S.J. and Barry, C.B. (1984). Anomalies in security returns and the specification of the market model. *The Journal of Finance*, 39: 807-815.
- Brunner, K. (1961). Some Major Problems in Monetary Theory. *American Economic Review*, (May):47-56.
- Bryant, R. C., Holtham, G. and Hooper, P. (1988). Consensus and diversity in the model simulations. In R. C. Bryant, D. W. Henderson, G. Holtham, P. Hooper, and S. A. Symansky (Eds.), *Empirical macroeconomics for interdependent economies (pp. 27-62)*. Washington, D.C.: The Brookings Institution.
- Bulmash, S.B. and Trivoli, G.W. (1991). Time-lagged interactions between stock prices and selected economic variables. *Journal of Portfolio Management*, 17(4): 61-67.
- Cagan, P. (1972). *Channels of monetary effects on interest rates*. New York, New York, USA: Columbia University Press.
- Cagan, P. and Gandolfi, A. (1969). The lag in monetary policy as implied by the time pattern of monetary effects on interest rates. *American Economic Review*, 59(2): 277-284.
- Calcagnini, G., DeBonis, R. and Hester, D.D.(1999). Determinants of bank branch expansion in Italy. *40th Società Italiana Degli Economisti meeting, October 29-30 (University of Ancona)*.
- Castelnuovo, E. and Nistico, S. (2010). Stock market conditions and monetary policy in an DSGE model for the US. *Journal of Economic Dynamics and Control*, 34(9): 1700-1731.
- Calvet, L. and Fisher, A. (2002). Multifractality in asset returns: Theory and evidence. *The Review of Economics and Statistics*, 84: 381-406.
- Campbell, J.Y. and Ammer, J. (1993). What moves the stock and bond markets? A variance decomposition for long-term asset returns. *The Journal of Finance*, 48: 3-37.
- Capaul, C., Rowley, I. and Sharpe, W.F. (1993). International value and growth stock returns. *Financial Analysts Journal*, 49: 27-36.
- Caporale, G. M. and Howells, P. (2001). Money, credit and spending: Drawing causal inferences. *Scottish Journal of Political Economy*, 48: 547-557.
- Caprio, J., Gerard and Klingebiel, D. (2003). Episodes of Systemic and Borderline Financial Crises. *World Bank*.

- Carhart, M.M. (1997). On persistence in mutual fund performance. *Journal of Finance*, 52: 57-82.
- Carpenter, S. and Demiralp, S. (2006). The Liquidity Effect in the Federal Funds Market: Evidence from Daily Open Market Operations. *Journal of Money, Credit, and Banking*, 38(4): 901-20.
- Chan, L.K.C., Hamao, Y. and Lakonishok, J. (1993). Can fundamentals predict Japanese stock returns? *Financial Analysts Journal*, 49: 63-69.
- Chan, L.K.C., Hamao, Y. and Lakonishok, J. (1991). Fundamentals and stock returns in Japan. *Journal of Finance*, Vol. 46: pp. 1739-64.
- Chen, N., Roll, R. and Ross, S. (1986). Economic forces and the stock markets. *Journal of Business*, 59: 383-403.
- Chen, N.F. (1991). Financial investment opportunity and the Macroeconomy. *Journal of Business*, 46: 529-554.
- Chen, N. F., Roll, R. and Ross, S. A. (1986). Economic forces and the stock market. *Journal of Business*, 59(3): 383-403.
- Cheng, A.C.S. (1995). The U.K. stock market and economic factors: a new approach. *Journal of Business Finance and Accounting*, 22(1): 129-142.
- Cheung, Y.W. and Lai, K.S. (1993). Finite-sample sizes of Johansen's likelihood ratio tests for cointegration, *Oxford Bulletin of Economics and Statistics*, 55, 313-328.
- Chia, S.Y. and Pacini, M. (1997). *ASEAN in the new Asia: issues and trends*. Singapore: Institute of Southeast Asia Studies.
- Cho, D.C., Eun, C.S. and Senbet, L.W. (1986). International arbitrage pricing theory: An empirical investigation. *Journal of Finance* 41: 313-329.
- Cho, D.C. (1984). On testing the arbitrage pricing theory: Inter-battery factor analysis. *Journal of Finance* 39: 1485-1502.
- Choi, I. (2001). Unit root tests for panel data. *Journal of International Money and Finance*, 20: 249-272.
- Choi, W.G. and Oh, S. (2000). Endogenous money supply and money demand. *IMF Working Paper No. WP/00/188*.
- Chopra, N., Lakonishok, J. and Ritter, J.R. (1992). Measuring abnormal performance: Do stocks overreact. *Journal of Financial Economics*, 31: 235-268.
- Chordia, T., Subrahmanyam, A. and Anshuman, V.R. (2001). Trading activity and expected stock returns. *Journal of Financial Economics*, 59: 363-2.
- Choudhry, T. (1996). Real stock prices and the long-run demand money function: Evidence from Canada and the USA. *Journal of International Money and Finance*, 15(1): 1-17.
- Christiano, L. J., Eichenbaum, M. and Evans, C. L. (1999). Monetary policy shocks: What have we learned and to what end? In: J. B. Taylor, and M. Woodford, (Eds.), *Handbook of Macroeconomics*, Vol. 1, Chapter 2, Elsevier, Amsterdam, pp. 65-148.
- Christiano, L.J., Eichenbaum, M. and Evans, C.L. (1996). The Effects of Monetary Policy Shocks: Evidence from the Flow of Funds. *Review of Economics and Statistics*, 78(1), 16-34.
- Christiano, L.J. and Eichenbaum, M. (1995). Liquidity effects, monetary policy and the business cycle. *Journal of Money, Credit and Banking*, 27: 1113-1136.
- Christiano, L.J. and Eichenbaum, M. (1992a). Liquidity Effects and the Monetary Transmission Mechanism. *The American Economic Review*, May, pp. 346-53.



- Christiano, L.J. and Eichenbaum, M. (1992b). Liquidity Effects, Monetary Policy, and the Business Cycle. *National Bureau of Economic Research Working Paper No. 4129, August*.
- Christiano, L.J. and Eichenbaum, M. (1992). Identification and the liquidity effect of a monetary shock. In: A. Cukierman, L.Z. Hercowitz, L. Leiderman (eds.), *Business Cycles, Growth and Political Economy*. MIT Press. Cambridge.
- Christie, A. (1987). On cross-sectional analysis in accounting research. *Journal of Accounting and Economics*, 9: 231-. 258.
- Chung, Y.P., Johnson, H. and Schill, M.J. (2001). Asset pricing when returns are nonnormal: Fama-french factors vs higher-order systematic co-moments. *Working paper, A. Gary Anderson, Graduate School of Management, University of California, Riverside*.
- Cifter, A. and Ozun, A. (2007). The monetary transmission mechanism in the new economy: Evidence from Turkey (1997-2006). *South East European Journal of Economics and Business*, 2: 15-24.
- Clare, A.D., Priestley, R. and Thomas, S.H. (1998). Reports qh" dgvcøu" fgcvj" ctg" premature: Evidence from the UK. *Journal of Banking and Finance*, Vol. 22: pp. 1207-29.
- Clarke, J. A. and Mirza, S. (2006). A comparison of some common methods for detecting Granger noncausality. *Journal of Statistical Computation & Simulation*, 76: 207-231.
- Cochrane, J.H. (2001). *Asset pricing*. Princeton University Press, Princeton New Jersey.
- Cochrane, J.H. (2000). A rehabilitation of the stochastic discount factor methodology. *Graduate School of Business, University of Chicago Working Paper*.
- Cochrane, J.H. (1991). Volatility tests and efficient markets: A review essay. *Journal of Monetary Economics*, 27: 463-485
- Cochrane, J. H.(1989). The Return of the Liquidity Effect: A Study of the Short-Run Relation Between Money Growth and Interest Rates. *Journal of Business & Economic Statistics*, January: 75-83.
- Cole, D.C., Scott, H.S. and Wellons, P.(1995).The Asian money markets: an overview. In D.C. Cole, H.S. Scott, and P. Wellons (Eds.), *Asian money markets: focus of financial policy*.New York: Oxford University Press.
- Collins, D., Kothari, S.P. and Rayburn, J. (1987). Firm size and the information content of prices with respect to earnings. *Journal of Accounting and Economics*, 9: 111-138.
- Collins, D. and Kothari, S.P. (1989). An analysis of intertemporal and cross-sectional determinants of earnings response coefficients. *Journal of Accounting and Economics*, 11: 143-181.
- Collins, D., Kothari, S.P., Shanken, J. and Sloan, R. (1994). Lack of timeliness versus noise as explanations for low contemporaneous return earnings association. *Journal of Accounting and Economics*, 18:289-324.
- Conarella, G. and Pollard, S.K. (1989). Unanticipated monetary growth, output and the price in Latin America: An Empirical investigation. *Journal of Development Economics*, Vol. 30, No. 2: 345-358.
- Cooper, R.V. L. (1974). Efficient capital markets and the quantity theory of money. *Journal of Finance* 24: 887-921.
- Cooper, R.V.L. (1972). *Efficient Capital Markets and the Quantity Theory of Money*. The Rand Corporation, Santa Monica.

- Cooper, R.V.L. (1970). Efficient Capital Markets and the Quantity Theory of Money. *Journal of Finance*, (May): 338-341.
- Cox, J.C., Ingersoll, J.E. and Ross, S.A. (1985). A Theory of the Term Structure of Interest Rates. *Econometrica*, 53: 385-487.
- Cox, J.C., Ingersoll, J.E. and Ross, S.A. (1977). A theory of the term structure of interest rates and the valuation of interest dependent claims. *Journal of Financial and Quantitative Analysis*, 12.
- Craig, V. V. (1998). Financial deregulation in Japan. *FDIC Banking Review*, 11: 1-12.
- Curry, T. and Shibut, L. (2000). The cost of the savings and loan crisis: Truth and consequences. *FDIC Banking Review*, 13: 26-35.
- Daniel, K. and Titman, S. (1997). Evidence on the characteristics of cross-sectional variation in stock returns. *Journal of Finance*, 52: 1-33.
- Davidson, R. and MacKinnon, J.G. (1993). *Estimation and Inference in Econometrics*. Oxford University Press, New York.
- Davis, J.L. (2001). Mutual fund performance and manager style. *Financial Analysts Journal*, 57: 19-27.
- Davis, J. (1994). The cross-section of realised stock returns: the pre-COMPUSTAT evidence. *Journal of Finance*, Vol. 49: pp. 1579-93.
- Davis, J. L., Fama, E.F. and French, K.R. (2000). Characteristics, covariances, and average returns: 1929 to 1997. *Journal of Finance*, 55: 389-406.
- Day, T.E. (1984). Real stock returns and inflation. *Journal of Finance* 39 : 493-502.
- DeBondt, W.F.M. and Thaler, R. (1989). Anomalies: A mean-reverting walk down Wall Street. *The Journal of Economic Perspectives*, 3:189-202.
- DeBondt, W. and Thaler, R. (1987). Further evidence of overreaction and stock market seasonality. *Journal of Finance*, 42: 557-581.
- DeBondt, W.F.M. and Thaler, R. (1985). Does the stock market overreact? *Journal of Finance*, 40: 793-805.
- Dechow P., Hutton, A. and Sloan, R. (1999). An empirical assessment of the residual income valuation model. *Journal of Accounting and Economics*, 26: 1-34.
- DeFina, R.H. (1991). Does inflation depress the stock market. *Business Review. Federal Reserve Bank of Philadelphia*, Nov/Dec: 3-12.
- DeLong, J.B., et al (1987). Noise trader risk in financial markets. *NBER Working Paper No. 2395*.
- Demsetz, H. (1968). The cost of transacting. *Quarterly Journal of Economics*, 82: 336-53.
- Dhakal, D., Kandil, M. and Sharma, S. C. (1993). Causality between the money supply and share prices: a VAR investigation. *Quarterly Journal of Business and Economics*, 32(3): 52-74.
- Dhrymes, P.J., Friend, I. and Gultekin, N.B. (1984). A critical examination of the empirical evidence on the arbitrage pricing theory. *Journal of Finance*, 39: 323-346.
- Dickey, D. A. and Fuller, W.A. (1979). Distribution of the estimators for autoregressive time series with a unit root. *Journal of the American Statistical Association*, 74: 427-431.
- Dickey, D. A. and Fuller, W. A. (1981). Likelihood ratio statistics for autoregressive time series with a unit root. *Econometrica*, 49: 1057-1072.
- Dickey, D. A., Jansen, D.W. and Thornton, D.L. (1991). A primer on cointegration with an application to money and income. *Federal Reserve Bank of St. Louis Review*, 73: 58-78.

- Dobnik, F. (2011). Long-run Demand Money Demand in OECD Countries. Cross-Member Cointegration. *RUHR Economic Papers #237*.
- Dolado, J. J. and Lutkepohl, H. (1996). Making Wald tests work for cointegrated VAR Systems. *Econometric Reviews*, 15: 369-386.
- Douglas, G.W. (1969). Risk in the equity markets: An empirical appraisal of market efficiency. *Yale Economic Essays*, Vol. 9: pp. 3-45.
- Dreger, C., Reimers, H. and Roffia, B. (2007). Long-run money demand in the new EU member states with exchange rate effects. *Eastern European Economics*, 45(2):75694.
- Duca, J.V. (2000). Financial technology shocks and the case of the Missing M2. *Journal of Money, Credit and Banking*, 32(4): 820-839.
- Duca, J.V. (1995). Should Bond Funds be added to M2. *Journal of Banking and Finance*, 19(4): 131-152.
- Dumas, B. and Solnik, B. (1995). The world price of foreign exchange risk. *Journal of Finance* 50: 4456479.
- Easton, P., Harris, T. and Ohlson, J.A. (1992). Aggregate accounting earnings can explain most of security returns: The case of long return intervals. *Journal of Accounting and Economics*, 15: 119-142
- Edmond, C. and Weill, P-O. (2005). *Models of the Liquidity Effect*. The New Palgrave Dictionary of Economics, Palgrave Macmillan.
- Edwards, E.O. and Bell, P.W. (1961). *The Theory and measurement of business income*. Berkeley: University Of California Press.
- Effa, Z.B., Ariff, M. and Khalid, A.M. (2013). Post-Keynesian money endogeneity evidence in G-7 economies. *Journal of International Money and Finance*, 33: 1466162.
- Effa, Z.B., Ariff, M. and Khalid, A.M. (2011). Money Supply Endogeneity and Bank Stock Returns. *Applied Financial Economics*, Vol. 21 (no. 10): 156-173.
- Effa, Z.B., et al. (2011). Endogeneous money supply and bank stock returns: Empirical evidence using panel data. *Applied Financial Economics*, 25(6): 345-356.
- Eichenbaum, M. and Evans, C. (1995). Some empirical evidence on the effects of monetary policy shocks on exchange rates. *Quarterly Journal of Economics*, 110: 975-1009.
- Ely, D.P. and Robinson, K.J. (1997). Are stocks a hedge against inflation? International evidence using a long-run approach. *Journal of International Money and Finance* 16: 1416167.
- Eleswarapu, V. R. and Reinganum, M. (1993). The seasonal behavior of liquidity premium in asset pricing. *Journal of Financial Economics*, 34: 373686.
- Elton, E.J., Gruber M.J., Agrawal, D. and Mann, C. (2001). Explaining the rate spread on corporate bonds. *Journal of Finance*, 56: 247-277.
- Engle, R.F. and Granger, C.W.J. (1987). Cointegration and Error Correction: Representation, Estimation and Testing. *Econometrica*, 55: 251-276.
- Fabozzi, F.J. and Francis, J.C. (1977). Stability tests for alphas and betas over bull and bear market conditions. *Journal of Finance*, Vol. 32: pp. 1093-9.
- Faff, R. and Brooks, R.D. (1998). Time-varying beta risk for Australian industry portfolios: An exploratory analysis. *Journal of Business Finance and Accounting*, Vol. 25: pp. 721-45.

- Faff, R., Lee, J. and Fry, T. (1992). Time stationarity of systematic risk: some Australian Evidence. *Journal of Business Finance and Accounting*, Vol. 19: pp. 253-70.
- Fair, R. (2002). Events that shook the market. *Journal of Business*, 75: 713-731.
- Fama, E.F. and French, K.R. (2004). The capital asset pricing model: Theory and evidence. *The Journal of Economic Perspectives*, 18: 25-46.
- Fama, E.F. and French, K.R. (2000). Characteristics, covariances, and average returns: 1929 to 1997. *The Journal of Finance*, 55: 389-406.
- Fama, E.F. and French, K.R. (1996). Multifactor explanations of asset pricing anomalies. *The Journal of Finance*, 51: 55-84.
- Fama, E.F. and French, K.R. (1995). Size and book-to-market factors in earnings and returns. *The Journal of Finance*, 50: 131-155.
- Fama, E.F. and French, K.R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*, 33: 3-56.
- Fama, E.F. and French, K.R. (1992). The cross section of expected stock returns. *The Journal of Finance*, 47: 427-465.
- Fama, E.F. (1991). Efficient capital markets: II. *Journal of Finance*, 46: 1575-1617.
- Fama, E.F. (1990). Stock returns, expected returns, and real activity. *Journal of Finance*, 45: 1089-1108.
- Fama, E.F. (1981). Stock returns, real activity, inflation, and money. *American Economic Review*, 71:545-565.
- Fama, E.F. and Schwert, G.W. (1977). Asset returns and inflation. *Journal of Financial Economics*, 5:115-146.
- Fama, E.F. and French K.R. (1988). Permanent and temporary components of stock prices. *Journal of Political Economy*, 96: 246-273.
- Fama, E.F. and MacBeth, J. (1973). Risk, return and equilibrium: empirical tests. *Journal of Political Economy*, 71: 607-636.
- Fama, E.F. (1970). Efficient capital markets: A review of theory and empirical work. *Journal of Finance*, 25:383-417.
- Faust, J. (1998). The robustness of identified VAR conclusions about money. *Carnegie-Rochester Series on Public Policy* 49: 207-244.
- Faust, J. and Leeper, E.M. (1997). When do long-run identifying restrictions give reliable results? *Journal of Business & Economics Statistics*, 15: 345-353.
- Feige, E.L. and Pearce, K.L. (1979). The Causality Relationship between Money and Income Some Caveats for Time Series Analysis. *Review of Economics and Statistics*, (November): 521-533.
- Feltham G.A. and Ohlson, J.A. (1996). Uncertainty resolution and depreciation. *Journal of Accounting Research*, Vol. 34 : 209-234.
- Feltham, G. and Ohlson, J.A. (1995). Valuation and clean surplus accounting for operating and financial activities. *Contemporary Accounting Research*, 11: 689-731.
- Ferson, W.E. and Harvey, C.R. (1999). Conditioning variables and the cross-section of stock returns. *Journal of Finance*, Vol. 54: pp. 1325-60.
- Fielitz, B. D. and Muller, F.L. (1985). A simplified approach to common stock valuation. *Financial Analysts Journal*, 35:41.
- Fisher, I. (1933). The Debt Deflation Theory of Depressions. *Econometrica*: 1933.
- Fisher, I. (1932). *Booms and Depressions: Some First Principles*. (George Allen & Unwin.).
- Fisher, R.A. (1932). *Statistical Methods for Research Workers*. (Oliver & Boyd, Edinburgh).

- Fleming, M. J. and Remolona, E.M. (1997). What moves the bond market? *Federal Reserve Bank of New York Economic Policy Review*, December: 31-50.
- Fontana, G. (2003). Post Keynesian approach to money endogeneity. *Review of Political Economy*, 15(3): 291-314.
- Fontana, G. and Palacio-Vera, A. (2003). Is there an active role for monetary policy in the endogenous money approach? *Journal of Economic Issues*, 37(2): 511-517.
- Foster, J. (1994). An evolutionary macroeconomic model of Australian dollar M3 determination: 1967-93. *Applied Economics*, 26: 1109-1120.
- Foster, J. (1992). The Determination of Sterling M3, 1963-88: An evolutionary macroeconomic approach. *The Economic Journal*, 102: 481-496.
- Frenkel, J.A. (1981). Flexible exchange rates, prices and the role of news: Lessons from the 1970s. *Journal of Political Economy* 89: 665-705.
- Friedman, M. (1988). Money and the Stock Market. *The Journal of Political Economy*, 96(2): 221-45.
- Friedman, M. (1983). Monetary Variability: United States and Japan. *Journal of Money, Credit and Banking*, 15: 339-343.
- Friedman, M. (1969). The Optimum Quantity of Money [1969]; The Role of Monetary Policy [1968]; Price, Income, and Monetary Changes in Three Wartime Periods [1952]; The Supply of Money and Changes in Prices and Output [1958]; Money and Business Cycles [1963]; In Defense of Destabilizing Speculation [1960]. In Milton Friedman (ed.), *The Optimum Quantity of Money and Other Essays*. Chicago: Aldine Publishing Company.
- Friedman, M. (1961). The lag in effect of monetary policy. *Journal of Political Economy*, 447-466.
- Friedman, M. and Schwartz, A. J. (1963). Money and business cycles. *The Review of Economics and Statistics*, 63: 52-64.
- Friend, I. and Puckett, M. (1964). Dividends and stock prices. *The American Economic Review*, 54 (5): 656-682.
- Friedman, M. and Schwartz, A.J. (1963). Money and Business Cycles. *Review of Economics and Statistics*, (February): 52-64.
- Fung, H.G. and Lie, C.J. (1990). Stock market and economic activities: a causal analysis. In S.L.Rhee and R.P. Chang (eds.), *Pacific-basin capital markets Research*. Amsterdam: North Holland.
- Galagedera, D.U.A. (2007). Relationship between systematic-risk measured in the second-order and third-order co-moments in the downside framework. *Applied Financial Economics Letters*, vol. 3(3): 147-153.
- Gedeon, S.J. (2009). Money supply endogeneity under a currency board regime: The case of Bosnia and Herzegovina. *Journal of Post Keynesian Economics*, 32(1): 97-114.
- Geske, R. and Roll, R. (1983). The fiscal and monetary linkage between stock returns and inflation. *Journal of Finance*, 38:1-33.
- Gibson, W.E. (1970a). The Lag in the Effect of Monetary Policy on Income and Interest Rates. *Quarterly Journal of Economics*, 84(May): 288-300.
- Gibson, W.E. (1970b). Interest Rates and Monetary Policy. *Journal of Political Economy*, 78(May/June): 431-55.
- Giese, J. V. and Tuxen, C.K. (2008). *Has Excess Liquidity Fueled Asset Prices? Evidence from I(1) and I(2) Cointegrated VAR Models*. Unpublished Working Paper. Nuffield College, University of Oxford and Department of Economics, University of Copenhagen.

- Giese, J. V. and Tuxen, C. K. (2007). *Global Liquidity, Asset Prices and Monetary Policy: Evidence from Cointegrated VAR Models*. Unpublished Working Paper. Nuffield College, University of Oxford and Department of Economics, University of Copenhagen.
- Giles, J. A. and Mirza, S. (1999). Some pretesting issues on testing for Granger noncausality. *Econometrics Working Papers Department of Economics, University of Victoria*.
- Gode, D. and Ohlson, J.A. (2004). Accounting-based valuation with changing interest rates. *Working paper, NYU*.
- Goodman, D.A. and Peavy, J.W. III, (1983). Industry relative price-earnings ratios as indicators of investment returns. *Financial Analysts Journal*, 39: 60-66.
- Goodfriend, M. and McCallum, B. T. (2007). Banking and interest rates in monetary policy analysis: A quantitative exploration. *Journal of Monetary Economics*, 54: 1480-1507.
- Goodfriend, M. (1997). A framework for the analysis of moderate inflations. *Journal of Monetary Economics*, 39 (1) June: 45-65.
- Gordon, D.B. and Leeper E.M. (2002). The Price Level, the Quantity Theory of Money, and the Fiscal Theory of the Price Level. *NBER Working Paper 9084*: National Bureau of Economic Research, Inc.
- Gordon, D.B. and Leeper, E.M. (1994). The dynamic impacts of monetary policy: an exercise in tentative identification. *Journal of Political Economy*, 102: 1228-1247.
- Gordon, M. J. (1963). Optimal investment and financing policy. *Journal of Finance*, 18 (2): 264-272.
- Gordon, M.J. (1962). *The investment financing and the valuation of the corporation*. New York: Richard Irwin.
- Gordon, M. J. (1962). The savings, investment and valuation of the corporation. *Review of Economics and Statistics*, 44 (1): 37-51.
- Gordon, M. J. and Shapiro, E. (1956). Capital equipment analysis: the required rate of profit. *Management Science*, 3(1):102-110.
- Gosnell, T.F., Koewn, A.J. and Pinkerton, J.M. (1996). The intraday speed of stock price adjustment to major dividend changes: Bid-ask bounce and order flow imbalances. *Journal of Banking and Finance*, 20: 2476266.
- Granger, C.W.J. (1988).Some recent development in a concept of causality. *Journal of Econometrics*, 39: 199-211.
- Granger, C.W.J. (1986). Developments in the study of cointegrated economic variables. *Oxford Bulletin of Economics and Statistics*, 48:3 : 2136228.
- Granger, C.W.J. and Weiss, A.A. (1983). Time Series Analysis of Error-Correcting Models. In *Studies in Econometrics, Time Series, and Multivariate Statistics*. New York: Academic Press, 255-278.
- Granger, C.W.J. (1969). Investigating Causal Relations by Econometric Models and Cross Spectral Methods. *Econometrica*, (July): 424-438.
- Greene, W. (1990). *Econometric analysis*. New York: Macmillan, New York.
- Groenewold, N. and Fraser, P. (1997). Share prices and macroeconomic factors. *Journal of Business Finance and Accounting*, Vol. 24: pp. 1367-83.
- Gros, D. and Thygesen, N. (1998). *European Monetary Integration. From the European Monetary System to Economic and Monetary Union* (Longman, London, UK).
- Gultekin, N.B. (1983). Stock market returns and inflation: Evidence from other countries. *Journal of Finance* 38 : 49667.

- Hadri, K. (2000). Testing for Stationarity in Heterogeneous Panel Data. *Econometrics Journal*, 3: 138-161.
- Hamburger, M.J. and Kochin L.A. (1972). Money and stock Prices: The Channels of Influence. *Journal of Finance*, (May): 231-249.
- Hamao, Y. (1988). An empirical investigation of the arbitrage pricing theory. *Japan and the World Economy 1*: 45-61.
- Hamilton, J.D. (1997). Measuring the Liquidity Effect. *American Economic Review*, 87(1), 80-97.
- Hansen, B. (1992). Tests for Parameter Instability in Regressions with I(1) Processes. *Journal of Business & Economic Statistics*, Vol 10: 321-335.
- Hansen, L.P. (1982). Large Sample Properties of Generalized Methods of Moments Estimators. *Econometrica*, Vol. 50: 1029-1054.
- Hansen, L. P. and Singleton, K.J. (1982). Generalized Instrumental Variables Estimation of Nonlinear Rational Expectations Models. *Econometrica*, 50 (5): 1269-1286.
- Harkavy, O. (1953). The relationship between retained earnings and common stock price for large, listed corporations. *The Journal of Finance*, 8: 283-97.
- Harris, R. (1995). *Using cointegration analysis in econometric modelling*. Englewood Cliffs: Prentice Hall.
- Harris, T.C. and Opler, T.C. (1990). Stock Market Returns and Real Activity, *UCLA Working Paper*.
- Harvey, C.R. (1995). The risk exposure of emerging equity markets. *World Bank Economic Review* 9: 196-210.
- Hasbrouck, J.E. (2009). Trading Costs and Returns for U.S. Equities: Estimating Effective Costs from Daily Data. *The Journal of Finance*, 64: 1445-1477.
- Hashemzadeh, N. and Taylor, P. (1988). Stock Prices, Money Supply and Interest Rates: The Question of Causality. *Applied Economics*, 12:1603-1611.
- Haugh, L.D. (1976). Checking the Independence of Two Covariance Stationary Time Series A Univariate Residual Cross-Correlation Approach. *Journal of the American Statistical Association*, (June): 378-385.
- Hausman, J. (1978). Specification tests in econometrics. *Econometrica*, 46: 1251-1271.
- Hausman, J. (1983). Specification and estimation of simultaneous equations models. In Z. Griliches and M. Intriligator, (eds.), *Handbook of econometrics* (North-Holland, Amsterdam).
- Hayn, C. (1995). The information content of losses. *Journal of Accounting and Economics*, 20: 125-153.
- He, J. and Ng, L.K. (1994). Economic forces, fundamental variables and equity returns. *Journal of Business*, Vol. 67: pp. 599-639.
- Helbling, T. and Terrones, M. (2004). *Asset Price Booms and Busts – Stylized Facts from the Last Three Decades of the 20th Century*. Working Paper, International Monetary Fund, Washington, D.C.
- Jkemu. "L0T0" \*3;59+0" Ot0" Mg{pgu" cpf" v jg" õEncuukeu<" C" Uwi iguvgf" Kpvgrtrtgvckqp0" *Econometrica* 5: 1476-159.
- Hipel, K.W., McLeod, A.I. and Li, W.K. (1981). Causal and Dynamic Relationship, Time Series Analysis, Theory and Practice. In O. Anderson and A.C. Harvey (eds.), *Economic Analysis of Time Series*. Oxford: Philip Allan Publishers Ltd.
- Ho, T. and Stoll, H.R. (1983). The dynamics of dealer markets under competition, *Journal of Finance*, 38: 1053-1074.

- Ho, T. and Stoll, H.R. (1981). Optimal dealer pricing under transactions and return uncertainty, *Journal of Financial Economics*, 9: 476-73.
- Ho, Y.K. (1983). Money Supply and Equity Prices in Hong Kong. In Y.K. Ho and C.K. Law (ed.), *The Hong Kong Financial Markets: Empirical Evidences*. HK: University Publisher & Printer. pp. 211-233.
- Holtemöller, O.(2003). Money stock, monetary base and bank behavior in Germany, *Jahrbücher für Nationalökonomie and Statistik*, 223: 257-278.
- Homa, K.E. and Jaffee, D.M. (1971). The Supply of Money and Common Stock Prices. *Journal of Finance*, (December):1045-1066.
- Hong, H. (1977). Inflation and the market value of the firm. *Journal of Finance* 32: 1031-1048.
- Howells, P. G. A. (1995). The demand for endogenous money. *Journal of Post-Keynesian Economics*, 18: 89-106.
- Howells, P. G. A. (1995). Endogenous money. *International Papers in Political Economy*, 2.
- Howells, P. G. A. and Hussein, K. (1998). The endogeneity of money: Evidence from the G7. *Scottish Journal of Political Economy*, 45: 329-340.
- Hsiao, C. (2003). *Analysis of Panel Data*. 2<sup>nd</sup> edition, Cambridge University Press, Cambridge, UK.
- Hsiao, C. (1982). Autoregressive Modeling and Causal Ordering of Economic Variables. *Journal of Economic Dynamics & Control*, (4):243-259.
- (1981). Autoregressive Modeling and Money-Income Causal it Detection. *Journal of Monetary Economics*, (7):65-106.
- (1978). Autoregressive Modelling of Canadian Money and Income Data, *Working Paper No.7812*, (Toronto University of Toronto, Institute for Policy Analysis).
- Huang, Z. (2003). Evidence of a bank lending channel in the UK. *Journal of Banking and Finance*, 27: 491-510.
- Huang, R.D. and Kracaw, W.A.(1984).Stock market returns and real activity: a note. *Journal of Finance*, 39: 267-273.
- Icard, A. (1994). The transmission of monetary policy in an environment of deregulation and exchange rate stability: The French experience. *Journal of Monetary Economics*, 33: 87-103.
- Illing, M. (2003). A review of notable financial-stress events. In J. Chant, A. Lai, M. Illing and F. Daniel (eds.): *Bank of Canada Technical Report No. 95, Essays on Financial Stability* (Bank of Canada).
- Im, K. S., Pesaran, M.H. and Shin, Y. (2003). Testing for unit roots in heterogeneous panels. *Journal of Econometrics*, 115: 29-52.
- Im, K. S., Pesaran, M.H. and Shin, Y.(1997). Testing for unit roots in heterogeneous panels, Discussion Paper (University of Cambridge).
- Ince, O. S. and Porter, R.B. (2006). Individual equity return data from Thomson Datastream: Handle with care! *The Journal of Financial Research*, 29: 463-479.
- Jacoby, G., Fowler, D.F. and Gottesman, A.A. (2000). The capital asset pricing model and the liquidity effect: A theoretical approach. *The Journal of Financial Markets*, 3: 69-81.
- Jagannathan, R. and Wang, Z. (1996). The conditional CAPM and the cross-section of expected returns. *Journal of Finance*, Vol. 51: 3-53.



- James, C., Koreisha, S. and Partch, M. (1985). A VARMA Analysis of the Causal Relations Among Stock Returns, Real Output and Nominal Interest Rates. *Journal of Finance*, XL(5): 1375-1384.
- Jensen, M.C. (1968). The performance of mutual funds in the period, 1945-65. *Journal of Finance*, 23, No. 2: 389-416.
- Jegadeesh, N. (1990). Evidence of predictable behavior of security returns. *Journal of Finance*, 45: 881-898.
- Johansen, S. (1992). Determination of cointegration rank in the presence of a linear trend. *Oxford Bulletin of Economics and Statistics*, 54(3): 383-397.
- Johansen, S. (1991). Estimation and hypothesis testing of cointegration vectors in Gaussian vector autoregressive models. *Econometrica*, 59(6): 1551-1580.
- Johansen, S. and Juselius, K. (1990). The full information maximum likelihood procedure for inference on cointegration with applications to the demand for money. *Oxford Bulletin of Economics and Statistics*, 52(2): 169-210.
- Johansen, S. (1988). Statistical Analysis of Cointegration Vectors. *Journal of Economic Dynamics and Control*, 12: 231-254.
- Jones, P. (1991). *Investments Analysis and Management*. 3rd ed., John Wiley & Sons, New York, NY.
- Jorion, P. (1991). The pricing of exchange rate risk in the stock market. *Journal of Financial and Quantitative Analysis* 26: 363-376.
- Kaminsky, G. L. and Schmukler, S. L. (2003). Short-run pain, long-run gain: The effects of financial liberalization. *IMF Working Paper No. WP/03/34*.
- Kan, R. and Zhang, C. (1999). Two-pass tests of asset pricing models with useless factors. *Journal of Finance*, Vol. 54: pp. 203-35.
- Kanaya, A. and Woo, D. (2001). The Japanese banking crisis of the 1990s: Sources and lessons. *Essays in International Economics*, 222.
- Kandel, S. and Stambaugh, R.F. (1995). Portfolio inefficiency and the cross-section of expected returns. *Journal of Finance*, Vol. 50: pp. 157-84.
- Kato, R., Ui, T. and Watanabe, T. (1999). Asymmetric effects of monetary policy: Japanese experience. *Bank of Japan Working Paper Series*: 99-102.
- Kawai, M. (1980). Exchange Rate-Price Causality in the Recent Floating Period. In D. Bigman and T. Taya (eds.), *The Functioning of Floating Exchange Rates Theory, Evidence, and Policy Implication*. Cambridge: Ballinger Publishing and Co.
- Kasa, K. (1992). Common stochastic trends in international stock markets. *Journal of Monetary Economics*, 29: 95-124.
- Kashyap, A.K. and Stein, J.C. (1997). What do a million banks have to say about the transmission of monetary policy. *NBER working paper No. 6056*: National Bureau of Economic Research.
- Kashyap, A.K. and J.C. Stein. 1994. Monetary Policy and Bank Lending. In N.G. Mankiw (ed.) *Monetary Policy*. Chicago: University of Chicago Press.
- Keene, M.A. and Peterson, D.R. (2007). The importance of liquidity as a factor in asset pricing. *Journal of Financial Research Volume*, 30 (Issue 1): 91-109.
- Keran, M.W. (1971). Expectations, money and the stock market. *Federal Reserve Bank of St. Louis Review*, (Jan):16-31.
- Kim, D. (1995). The errors in the variables problem in the cross-section of expected stock returns. *Journal of Finance*, Vol. 50: pp. 1605-34.
- King, M. (2002). No money, no inflation -The role of money in the economy. *Bank of England Quarterly Bulletin*, 42: 162-176.

- King, R.G. and Trehan, B. (1983). The implications of an endogenous money supply for monetary neutrality. *NBER Working Paper No 1175*: National Bureau of Economic Research.
- Klevmarcken, N. A. (1989). Panel studies: What can we learn from them? Introduction. *European Economic Review*, 33: 523-529.
- Kormendi, R. and Lipe, R. (1987). Earnings innovations, earnings persistence, and stock returns. *Journal of Business*, 60: 323-345.
- Kothari, S.P. and Sloan, R. (1992). Information in prices about future earnings. *Journal of Accounting and Economics*, 15: 143-171.
- Kothari, S.P., Shanken, J. and Sloan, R.G. (1995). Another look at the cross-section of expected stock returns. *Journal of Finance*, Vol. 50: pp. 185-224.
- Kothari, S.P. and Zimmerman, J. (1995). Price versus return models. *Journal of Accounting and Economics*, 20: 155-192.
- Kozuka, S. (2005). Reform of banking regulation in Japan in the 1990s. *The Japanese Economy*, 33: 50-68.
- Kwon, C. S., Shin, T. S. and Bacon, F. W. (1997). The effect of macroeconomic variables on stock market returns in developing markets. *Multinational Business Review*, 5(2): 63-70.
- Kraft, J. and Kraft, A. (1977a). Common Stock Prices: Some Observations. *Southern Journal of Economics*, 43:1365-1367.
- Kraft, J. and Kraft, A. (1977b). Determinants of common stock prices in time series analysis. *Journal of Finance*, 32: 417-425.
- Laidler, D.E.W. (1993). *The demand for money: Theories, evidence, and problems*. New York: Harper Collins College Publisher.
- Lastrapes, W.D. and Selgin, G. (1995). The liquidity effect: identifying short-run interest rate dynamics using long-run restrictions. *Journal of Macroeconomics*, 17: 387-404.
- Lastrapes, W.D. (1998). International evidence on equity prices, interest rates and money. *Journal of International Money and Finance*, 17(3): 377-406.
- Lastrapes, W.D. (1995). An Empirical Analysis of Stock Price and Interest Rate Dynamics: The Role of Money. *Working paper, University of Georgia*.
- Lakonishok, J., Shleifer, A. and Vishny, R.W. (1994). Contrarian investment, extrapolation, and risk. *Journal of Finance*, 49: 1541-1578.
- Lee, S.Y. and Li, W.K. (1983). Money, Income and Prices and their Lead-Lag Relationships in Singapore. *Singapore Economic Review*, (April).
- Leeper, E. (2009). Anchors Away: How Fiscal Policy Can Undermine the Taylor Principle. *NBER Working Papers 15514*.
- Leeper, E. and Gordon, D. (1992). In Search of the Liquidity Effect. *Journal of Monetary Economics*, June: 341-369.
- Lehmann, B. (1990). Fads, martingales and market efficiency. *Quarterly Journal of Economics*, 105: 1-28.
- Lesmond, D.A. (2005). Liquidity of emerging markets. *Journal of Financial Economics*, 77: 411-452.
- Lesmond, D.A., Ogden, J.P. and Trzcinka, C.A. (1999). A new estimate of transaction costs. *The Review of Financial Studies*, 12(5): 1113-1141.
- Levin, A. and Lin, C. (1993). Unit root tests in panel data: Asymptotic and finite-sample properties. *Discussion Paper, University of California, San Diego*.
- Lettau, M. and Ludvigson, S. (2001). Resurrecting the CAPM: A cross-sectional test when risk premia are time-varying. *Journal of Political Economy*, 109: 1238-1287.

- Lev, B. (1989). On the usefulness of earnings and earnings research: Lessons and directions from two decades of empirical research. *Journal of Accounting Research*, 27( Suppl): 153-202.
- Lev, B. and Thiagarajan, S. (1993). Fundamental information analysis. *Journal of Accounting Research*, 31: 190-215.
- Lewellen, J. (2002). Momentum and autocorrelation in stock returns. *The Review of Financial Studies*, 15: 533-563.
- Liljeblom, E. and Stenius, M. (1997). Macroeconomic Volatility and Stock Market Volatility. Empirical Evidence on Finnish Data. *Applied Financial Economics*, 7: 419-26.
- Nkpfpgpdgti." G0" cpf" Tquu." U0" \*3; :3+0" Vqdkpøu" s" tcvkq" cpf" kpfwuvtkcn" qt icpk|cvkqp0" *Journal of business*, 54:1-32.
- Lintner, J. (1969). The aggregation of investor's diverse judgments and preferences in purely competitive security markets. *Journal of Financial and Quantitative Analysis*, 4: 347 - 400.
- Lintner, J. (1965). The valuation of risk assets and the selection of risky investments in stock portfolios and capital budgets. *Review of Economics and Statistics*, 47: 13-37.
- Litzenberger, R.H. and Ramaswamy K. (1982). The effects of dividends on common stock prices: tax effects or information effects? *Journal of Finance*, 37(2): 429-443.
- Litzenberger, R.H. and Ramaswamy K. (1979). The effects of personal taxes and dividends on capital asset prices. *Journal of Financial Economics*, 7.
- Liu J. and Ohlson, J.A. (2000). The Feltham-Ohlson (1995) model: Empirical implications. *Journal of Accounting Auditing and Finance*, 15 (3): 321-331.
- Lucas, R.E. (1990). Liquidity and Interest Rates. *Journal of Economic Theory*, April: 237-264.
- Lucas, R.E. (1972). Expectations and the Neutrality of Money. *Journal of Economic Theory* 4: 103-124.
- Ma, C.K. and Kao, G.W.(1990).On exchange rate changes and stock price reactions. *Journal of Business Finance and Accounting*, 17(3): 441-449.
- MacKinnon, J. G. (1996). Numerical distribution functions for unit root and cointegration tests. *Journal of Applied Econometrics*, 11: 601-618.
- MacKinnon, J. G., Haug, A. A. and Michelis, L. (1999). Numerical distribution functions of likelihood ratio tests for cointegration. *Journal of Applied Econometrics*, 14: 563-577.
- MacKinlay, A.C. (1995). Multifactor models do not explain deviations from the CAPM. *Journal of Financial Economics*, 38: 3-28.
- Maddala, G. S. and Wu, S. (1999). A comparative study of unit root tests with panel data and a new simple test. *Oxford Bulletin of Economics and Statistics*, 61: 631-652.
- Mahmoud, E. (1984). Accuracy in forecasting: A survey. *Journal of Forecasting*, 3: 139-159.
- Markowitz, H. (1952). Portfolio selection. *Journal of Finance*, 7: 77-91.
- Markowitz, H. (1959). *Portfolio selection: Efficient diversification of investment*. New York: John Wiley and Sons, 1959.
- Mayers, D. (1973). Nonmarketable assets and the determination of capital asset prices in the absence of a riskless asset. *Journal of Business*, April (46): 258-67.

- McAnally, M.L. (1994). *Determinants of systematic risk in banks: A comparison of financial accounting and other information*. Unpublished doctoral dissertation (Stanford University, Stanford, CA).
- McMillin, W. (1988). Money Growth Volatility and the Macroeconomy. *Journal of Money, Credit and Banking*, 20: 319-335.
- McNees, S.K. (1986). The Accuracy of Two Forecasting Techniques: Some Evidence and an Interpretation. *New England Economic Review*, Mar-Apr.:20-31.
- Melitz, J. (1990). Financial deregulation in France. *European Economic Review*, 34: 394-402.
- Melvin, M. (1983). The Vanishing Liquidity Effect of Money on Interest: Analysis and Implications for Policy. *Economic Inquiry*, April: 188-202.
- Merton, R.C. (1987). A simple model of capital market equilibrium with incomplete information. *Journal of Finance*, 42.
- Merton, R.C. (1973). An intertemporal capital asset pricing model. *Econometrica*, 41: 867-887.
- Meulendyke, A.-M. (1998). The Federal Reserve and U.S. monetary policy: A short history. In *U.S. Monetary Policy and Financial Markets* (Federal Reserve Bank of New York, New York).
- McQueen, G. and Thorley, S. (1991). Are stock returns predictable? A test using markov chains. *The Journal of Finance*, 46: 239-263.
- Mei, J. (1983). A semi-autoregression approach to the arbitrage pricing theory. *Journal of Finance*, (2): 599-620.
- Miles, D. and Timmermann, A. (1996). Variation in expected stock returns: evidence on the pricing of equities from a cross-section of UK companies. *Economica*, Vol. 63: pp. 369-82.
- Miller, M. and Scholes, M. (1972). Rates of return in relation to risk: a re-examination of some recent findings. In Jensen, M. (ed.), *Studies in the Theory of Capital Markets*, Praeger, New York, NY, pp. 47-78.
- Mishin, F.S. and White, E. (2003). US Stock Market Crashes and their Aftermath: Implications for Monetary Policy. In William C. Hunter, George G. Kaufman (eds.), *Asset Price Bubbles: The Implications for Monetary, Regulatory and International Policies*. Cambridge: The MIT Press: 53-80.
- Mishkin, F. S. (2000). From monetary targeting to inflation targeting: Lessons from the industrialized countries. *Banco de Mexico Conference, Stabilization and Monetary Policy: The International Experience* (Mexico City).
- Mishkin, F.S. (1998). *The economics of money, banking, and financial markets*. Columbia University: Addison Wesley Longman, Inc.
- Mishkin, F.S. (1995). Symposium on the Monetary Transmission Mechanism. *Journal of Economic Perspectives* 9: 3610.
- Moore, B. J. (1989). The endogeneity of credit money. *Review of Political Economy*, 1:64-93.
- Moore, B. J. (1988). *Horizontalists and Verticalists: The Macroeconomics of Credit-Money*.(Cambridge University Press, Cambridge).
- Moore, B.J. (1979). The endogenous money stock. *Journal of Post Keynesian Economics*, 2: 49-70.
- Mossin, J. (1966). Equilibrium in a capital asset market. *Econometrica*, 34: 768-783.
- Mookerjee, R. (1987). Monetary policy and the informational efficiency of the stock market: the evidence from many countries. *Applied Economics*, 19: 1521-1532.

- Mukherjee, T.K. and Naka, A. (1995). Dynamic relations between macroeconomic variables and the Japanese stock market: an application of a vector error correction model. *Journal of Financial Research*, 18(2): 223-237.
- Mundell, R.A. (1963). Capital Mobility and Stabilization Policy under Fixed and Flexible Exchange Rates. *Canadian Journal of Economics and Political Science* 29 : 475-485.
- Myers J. (1999). Implementing residual income valuation with linear information dynamics. *The Accounting Review*, 74: 147-161.
- Naka, A. and Tufte, D. (1997). Examining impulse response functions in cointegrated systems. *Applied Economics*, 29: 1593-1603.
- Nakaso, H. (2001). The financial crisis in Japan during the 1990s: how the Bank of Japan responded and the lessons learnt. *BIS Papers*: No. 6.
- Nautz, D. and Rondorf, U. (2010). The (in)stability of money demand in the Euro Area: Lessons from a cross-country analysis. *SFB 649 Discussion Papers No. 2010-02*.
- Nicholson, S.F. (1960). Price/Earnings ratios. *Financial Analysts Journal*, 16: 43-45.
- Ohanian, L. E. and Stockman, A.S. (1995). Theoretical Issues of Liquidity Effect. *Federal Reserve Bank of St. Louis Review*, May/June: 3-25.
- Ohanian, L.E. and Stockman, A.S. (1994). Short-Run Effects of Money When Some Prices are Sticky. *Federal Reserve Bank of Richmond, Economic Quarterly*, Summer: 1-23.
- Ohlson, J.A. (2001). Earnings, book values, and dividends in equity valuation: An empirical perspective. *Contemporary Accounting Research*, Vol. 18 No. 1, Spring.
- Ohlson, J.A. and Zhang, X. (1998). Accrual Accounting and Equity Valuation. *Journal of Accounting Research*, 36: 85-111.
- Ohlson, J.A. (1995). Earnings, book values, and dividends in equity valuation. *Contemporary Accounting Research*, Vol. 11(2): 661-687.
- Orphanides, A. and Porter, R.D.(2001). Money and inflation: The role of information regarding the determinants of M2 behavior. In H.-J. Klockers and C. Willeke (eds.), *Monetary Analysis: Tools and Applications* (European Central Bank, Frankfurt, Germany).
- Osterwald-Lenum, M. (1992). A note with quartiles as the asymptotic distribution of the maximum likelihood cointegration rank test statistics. *Oxford Bulletin of Economics and Statistics*, 54(3): 461-472.
- Ou, J. and Penman, S. (1989). Financial statement analysis and the prediction of stock percentage change in prices. *Journal of Accounting and Economics*, 11:295-330.
- Palmer, M. (1970). Money supply, portfolio adjustment and stock prices. *Financial Analysts Journal*, (July-Aug):19-22.
- Pagan, A.R. and Robertson, J.C. (1995). Resolving the Liquidity Effects. *Federal Reserve Bank of St. Louis, Review*, May/June:33-53.
- Parhizgari, A.M and Duong, N. (2011). M1, M2 and the US Equity Exchanges. *Frontiers in Finance and Economics*, Vol. 8, No. 2, 112-135.
- Palmer, M. (1970). Money supply, portfolio adjustment and stock prices. *Financial Analysts Journal*, (July-Aug):19-22.
- Parker, J.A. (2003). Consumption risk and expected stock returns. *The American Economic Review*, 93: 376-382.
- Parkinson, M. (1980). The extreme value method for estimating the variance of the rate of return. *Journal of Business*, 53: 616-65.

- Pastor, L. and Stambaugh, R.F. (2003). Liquidity risk and stock returns. *Journal of Political*, 11:642-645.
- Pastor, L. and Stambaugh, R.F. (2001). Liquidity risk and expected stock returns. *Working Paper, University of Chicago and the Wharton School, University of Pennsylvania*.
- Patell, J. and Wolfson, M. (1984). The intraday speed of adjustment of stock prices to earnings and dividend announcements. *Journal of Financial Economics*, 13: 223-252.
- Pearce, D. K. and Roley, V.V. (1985). Stock prices and economic news. *Journal of Business*, Jan: 49-67.
- Pearce, D.K. and Roley, V.V. (1983). The reaction of stock prices to unanticipated changes in money: a note. *Journal of Finance*, 38:1323-33
- Pedroni, P. (2004). Panel cointegration: Asymptotic and finite sample properties of pooled time series tests with an application to the PPP hypothesis. *Economic Theory*, 20: 597-625.
- Pedroni, P. (1999). Critical values for cointegration tests in heterogeneous panels with multiple regressors. *Oxford Bulletin of Economics and Statistics*, 61: 653-670.
- Pedroni, P. (1997). Panel cointegration: Asymptotic and finite sample properties of pooled time series tests, with an application to the PPP hypothesis: New results. *Working Paper (Indiana University)*.
- Penman, S. (1992). The articulation of price earnings ratios and market-to-book ratios and the evaluation of growth. *Working paper (University of California, Berkeley, CA)*.
- Penman, S.H. (1992). The articulation of price-earnings ratios and market to book ratios and the evaluation of growth. *Journal of Accounting Research*, Vol. 34, No. 2: 235-259.
- Pepper, N. and Zwick, B. (1971). *Liquidity and Income Effects of Monetary Changes on stock Prices*. USA: U.C.L.A.
- Perez-Quiros, G. and Timmermann A. (2000). Firm size and cyclical variations in stock returns. *Journal of Finance*, 55: 1229-1262.
- Perron, P. (1988). Trends and random walks in macroeconomic time series: further evidence from a new approach. *Journal of Economic Dynamics and Control*, 12(2/3): 297-332.
- Perold, A.F. (2004). The capital asset pricing model. *The Journal of Economic Perspectives*, 18: 3-24.
- Pesando, J.E. (1974). The Supply of Money and Common stock Prices Further Observations on the Econometric Evidence. *Journal of Finance*, (June): 909-922.
- Pesaran, M.H. and Timmermann, A. (1995). Predictability of stock returns: robustness and economic significance. *Journal of Finance*, 50(4): 1202-1228.
- Phelps, E.S. (1973). Inflation in the theory of public finance. *Swedish Journal of Economics* 75: 67-82.
- Phillips, P. and Ouliaris, S. (1990). Asymptotic properties of residual based tests for cointegration. *Econometrica*, 58: 165-193.
- Phillips, P. and Perron, P. (1988). Testing for a unit root in time series regression. *Biometrika*, 75(2): 335-346.
- Pierce, D.A. (1977). Relationships - and the Lack Thereof ó Between Economic Time Series, with Special Reference to Money and Interest Rates. *American Statistical Association Journal*, (March):11-22.

- Phillips, P. and Perron, P. (1988). Testing for a unit root in time series regression. *Biometrika*, 75(2): 335-346.
- Poon, S. and Taylor, S. J. (1991). Macroeconomic factors and the U.K. stock market. *Journal of Business Finance and Accounting*, 18(5): 619-636.
- Pesando, J.E. (1974). The Supply of Money and Common Stock Prices - Further Observations on the Econometric Evidence. *Journal of Finance*, (June): 909-922.
- Praetz, P.D. (1979). Testing for a flat spectrum on efficient market price data. *The Journal of Finance*, 34: 645-658.
- Quandt, R. (1960). Tests of the Hypothesis That a Linear Regression System Obeys Two Separate Regimes. *Journal of the American Statistical Association*, 55: 324-30.
- Quigley, G. and Siquefield, R.A. (2000). Performance of UK equity unit trusts. *Journal of Asset Management*, 1: 72-92.
- Radcliffe, R.C. (1987). *Investment*. 2nd ed. Scott, Foresman and Company, London.
- Radcliffe Report. (1959). *Committee on the Working of the Monetary System*. Cmnd. 827, HMSO, London.
- Rapach, D. E. (2001). Macro shocks and real stock prices. *Journal of Economics and Business* 53: 5-26.
- Ratanapakorn, O. and Sharma, S.C. (2007). Dynamic analysis between the US stock returns and the macroeconomic variables. *Applied Financial Economics*, 17: 369-377.
- Reinganum, M.R. (1981). A new empirical perspective on the CAPM. *Journal of Financial and Quantitative Analysis*, 16: 439-462.
- Reinganum, M.R. (1981). The arbitrage pricing theory: some empirical results. *Journal of Finance*, 36: 313-321.
- Rochon, L-P. (2006). Endogenous money, central banks and the banking system: Basil Moore and the supply of credit. In M. Setterfield (ed.), *Complexity, Endogenous Money and Macroeconomic Theory* (Edward Elgar, Cheltenham,UK).
- Rochon, L.-P. (1999). *Credit, Money, and Production: An Alternative post-Keynesian Approach*. (Edward Elgar, Cheltenham, UK).
- Rogalski, R.J. and Vinso, J.D. (1977). Stock Returns, Money Supply and the Direction of Causality. *Journal of Finance*, (September):1017-1030.
- Roll, R. and Ross, S.A. (1994). On the cross-sectional relation between expected returns and betas. *Journal of Finance*, Vol. 49: pp. 101-21.
- Roll, R. and Ross, S. (1980). An empirical investigation of the arbitrage pricing theory. *Journal of Finance*, 35(5): 1073-1103.
- Tqnn." T0" \*3 ;99+0" C" etkvkswg" qh" vjg" cuugv" rtkkpi" vjgqt {øu" iguvu0" Rctv" 3<" qp" rcuv" cpf" potential testability of the theory. *Journal of Financial Economics*, 4(2): 129: 176.
- Romer, C.D. and Romer, D.H. (1994a). Monetary policy matters. *Journal of Monetary Economics*, 34: 75-88.
- Romer, C.D. and Romer, D.H. (1994b). What ends Recessions? In Stanley Fischer and Julio Rotemberg (eds.), *NBER Macroeconomics Annual 1994*.
- Romer, C.D. and Romer, D.H. (1989). Does monetary policy matter? A new test in vjg"urktkv"qh"Htkgf ocp"cpf"Uej yctv|0ö"Kp"Q0L0"Dncpejctf and S. Fischer (eds.) *NBER Macroeconomics Annual 1989*. MIT press, Cambridge, MA, 121-170.
- Romer, C.D. and Romer, D.H. (1990). New evidence on the monetary transmission mechanism. *Brookings Papers on Economic Activity*, 1: 149-198.

- Roosa, R.V. (1951). Interest Rates and the Central Bank. In *Money, Trade, and Economic Growth: Essays in Honor of John Henry Williams*. New York: Macmillan.
- Ross, S.A. (1977). Return, risk and arbitrage. In Friend, I. and Bicksler, J.I. (eds.), *Risk and Return in Finance*. Ballinger, Cambridge, MA: 189-218.
- Ross, S. (1976). The arbitrage theory of capital asset pricing. *Journal of Economic Theory*, 13: 341-360.
- Rozeff, M.S. (1974). Money and Stock Prices: Market Efficiency and the Lag Effect of Monetary Policy. *Journal of Financial Economics*, 1: 245-302.
- Rozeff, M.S. (1974). *Money stock prices: Market efficiency and the lag in effect of monetary policy*. Unpublished doctoral dissertation. Graduate School of Management, University of Rochester.
- Rosenberg, B., Reid, K. and Lanstein, R. (1985). Persuasive evidence of market inefficiency. *Journal of Portfolio Management*, Vol. 11: pp. 9-17.
- Ryan, S.C (1995). A model of accrual measurement with implications for the evolution of the book-to-market ratio. *Journal of Accounting Research*, 33: 95-112.
- Said, S. and Dickey, D. A. (1984). Testing for unit roots in autoregressive-moving average models of unknown order. *Biometrika*, 71: 599-607.
- Sargan, J. D. (1958). The estimation of economic relationships using instrumental variables. *Econometrica*, 26: 393-415.
- Uct igpv."V0L0"cpf" Y cncceg."P0"\*3;97+0"öTcvkqpcnö"Gzrgevcvkqpu."vjg"Qrvk o cn"Oqpgvct{" Instrument, and the Optimal Money Supply Rule. *Journal of Political Economy* 83:2416254.
- Scheller, H. K.(2004). *The European Central Bank: History, Role and Functions* (European Central Bank, Frankfurt, Germany).
- Schwarz, G. (1978). Estimating the dimension of a model. *Annals of Statistics*, 6: 4616 464.
- Schwert, G.W. (1990). Stock returns and real activity: A century of evidence. *Journal of Finance* 45: 123761257.
- Schwert, W.G. (1987). Effects of model specification on tests for unit roots in macroeconomic data. *Journal of Monetary Economics*, 20(1): 73-103.
- Schwert, W.G. (1981). The adjustment of stock prices to information about inflation. *Journal of Finance*, 36: 15-2 .
- Serletis, A. and King, M. (1997). Common stochastic trends and convergence of European Union stock markets. *The Manchester School*, 65(1): 44-57.
- Seyhun, H.N. (1998), *Investment intelligence from insider trading*. Cambridge, MA: MIT Press.
- Seyhun, H.N. (1986). Insiders' profits, costs of trading, and market efficiency. *The Journal of Financial Economics*, 16: 189-212.
- Shanmugam, B., Nair, M. and Li, O. W. (2003). The endogenous money hypothesis: Empirical evidence from Malaysia. *Journal of Post Keynesian Economics*, 25: 599-611.
- Sharpe, W.F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *Journal of Finance*, 19: 425-442.
- Shefrin, H. and Stratman, M. (1985). The disposition to sell winners too early and rise losers too long: theory and evidence. *Journal of Finance*, 40.
- Shleifer, A. (2000). *Inefficient markets: An introduction to behavioral finance*. New York: Oxford University Press.



- Sims, C.A. and Zha, T. (1994). Does Monetary Policy Generate Recessions?: Using Less Aggregated Price Data to Identify Monetary Policy. *Unpublished manuscript*.
- Sims, C.A. (1992). Interpreting the Macroeconomic Time Series Facts: The Effects of Monetary Policy. *European Economic Review*, June: 975-1000.
- Sims, C.A.(1980). Macroeconomics and Reality. *Econometrica*, January: 1-49.
- Sims, C.A.(1974). Seasonality in Regression. *Journal of the American Statistical Association*, pp 618-626.
- Sims, C.A. (1972). Money, Income and Causality. *American Economic Review*, (September): 540-552.
- Smirlock, M., Gilligan, T. and Marshall, W. (1984). Tobin-Q and the structure-performance relationship. *American Economic Review*, 74: 1051-1060.
- Soenen, L. A. and Hennigar, E. S. (1988). An analysis of exchange rates, and stock prices, the U.S. experience between 1980 and 1986. *Akron Business and Economic Review*, 19(4): 7-16.
- Solnik, B. (1987). Using financial prices to test exchange rate models: a note. *Journal of Finance*, 42(1): 141-149.
- Solnik B. (1974). An equilibrium model of the international capital market. *Journal of Economic Theory*, 8: 500-24.
- Sorensen, E.H. and Williamson, D.A. (1985). Some evidence on the value of dividend discount models. *Financial Analysts Journal*, November/December: 60:69.
- Sorensen, E. H. (1982). Rational Expectations and the Impact of Money upon Stock Prices. *Journal of Financial and Quantitative Analysis*, December: 649-62.
- Sprinkel, B.W.(1971). *Money and Markets: A Monetarist View*. Richard D. Irwin, Homewood, IL.
- Sprinkel, B.W. (1964). *Money and Stock Prices*. New York: Richard D. Irwin, Homewood, III.
- Stock, J. and Watson, M. (1989). New Indices of Coincident and Leading Indicators. In O. Blanchard and S. Fischer (eds.) *NBER Macroeconomics Annual*, Cambridge: MIT Press.
- Strongin, S.(1995). The Identification of Monetary Policy Disturbances: Explaining the Liquidity Puzzle. *Journal of Monetary Economics*, June: 463-497.
- Stulz, R.M. (1986). Asset Pricing and Expected Inflation. *Journal of Finance*, 44: 1115-1153.
- Stulz, R.M. (1981). A model of international asset pricing. *Journal of Financial Economics*, 9: 383-406.
- Summers, L.H. (1986). Does the stock market rationally reflect fundamental values? *Journal of Finance*, 41.
- Tainer, E. M. (1993). *Using economic indicators to improve investment analysis*. New York, USA: John Wiley & Sons, Inc.
- Tarhan, V. (1995). Does the Federal Reserve Affect Asset Prices? *Journal of Economic Dynamics and Control*, July-September: 1199-1222.
- Tas, B.K.O. and Togay, S. (2012). A direct test of the endogeneity of money: Implications for Gulf Cooperation Council (GCC) countries. *Economic Modelling*, 29(3): 577-585.
- Taylor, J. B. (1975). Monetary policy during a transition to rational expectations. *Journal of Political Economics* 83:1009-21.
- Thaler, R.H. (1987). Anomalies: The January effect. *The Journal of Economic Perspectives*, 1: 197-201.

- Thiessen, G. (1998). The Canadian experience with targets for inflation control. *The Gibson Lecture*
- Thornton, D.L. (2007). Open Market Operations and the Federal Funds Rate. In *Open Market Operations and the Financial Markets*, the Bank of Finland, reprinted in the Federal Reserve Bank of St. Louis Review, 89(6), 549-72.
- Vjqtqvqp." F0N0" \*4223+0" Vjg" Hgfgtcn" Tgugtxgøu" Qrgtcvki" Procedure, Nonborrowed Reserves, Borrowed Reserves and the Liquidity Effect. *Journal of Banking and Finance*, 32:155-167.
- Thornton, J. (1993). Money, Output and Stock Prices in the UK: Evidence on some (non)relationships. *Applied Financial Economics*, 3: 335-338.
- Thornton, J. (1991). Velocity and the Variability of Monetary Growth in the United Kingdom. *Applied Economics*, 23: 811-813.
- Toda, H.Y. and Yamamoto, T. (1995). Statistical inference in vector autoregressive with possibility integrated processes. *Journal of Econometrics*, 66:225-250.
- Tobin, J. (1969). A General Equilibrium Approach to Monetary Theory. *Journal of Money, Credit, and Banking* 1: 156-29.
- Tobin, J. (1963). *An Essay on Principles of Debt Management*. The Commission on Money and Credit Fiscal and Debt Management Policies, N.J.: Englewood Cliffs, Princeton Hall.
- Tobin, J. (1958). Liquidity Preference as Behavior Towards Risk. *The Review of Economic Studies*, XXV (February, 1958): 65-86.
- Todd, R.A. (1990). Vector Autoregression Evidence on Monetarism: Another Look at the Robustness Debate. *Quarterly Review of the Federal Reserve Bank of Minneapolis*, Spring:19-37.
- Trzcinka, C. (1986). On the number of factors in the arbitrage pricing model. *Journal of Finance* 41: 347-368.
- Vera, A. P. (2001). The endogenous money hypothesis: some evidence from Spain (1987-1998). *Journal of Post Keynesian Economics*, 23: 509-526.
- Vymyatnina, Y. (2006). How much control does Bank of Russia have over money supply? *Research in International Business and Finance*, 20: 131-144.
- Warfield, T. and Wild, J. (1992). Accounting recognition and the relevance of earnings as an explanatory variable for returns. *The Accounting Review*, 67: 821-842.
- Wells, D. R. (2004). *The Federal Reserve system: A History* (McFarland & Company, Inc., Jefferson, North Carolina).
- Williamson, J. and Mahar, M. (1998). A survey of financial liberalization. *Essays in International Finance* :211.
- World Stock Exchange. *Fact Book (1997)*. Austin: Meridian Securities Markets LLC.
- Yamaguchi, H. (2004). Lcrpøu" geqpø{ and monetary policy: A pragmatic evaluation. *Japan and the World Economy*, 16: 113-119.