A guide to my research on monetary and financial economics

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Introductory remarks- why bother with the blog?

It is my intention to place much of my research output on my Blog; *zaeconomist.com*. This has given me the opportunity to review and reconsider my *oeuvre*. I have provided this introduction to my work on monetary and financial economics that is intended to put my writing and research into a helpful context.

This review has encouraged me to update some of the earlier work on money and economic activity in South Africa. Reference to some of the latest results will be made. The struggle to convince my fellow economists and the monetary authorities to think and behave otherwise therefore continues. *La luta continua*

I have published a large number of papers on monetary thought, history and policy and on the behaviour of financial markets. The three books I have published (1982, 1995 and 1999) devoted much attention to monetary economics and policy. They included a number of chapters that covered monetary economics and policy and these have been added to this collection.

Not all of my papers found publishers at the time of writing and I gave up the attempt to have them published. A number of papers I wrote on the monetary history of the Cape, on British Colonial Financial arrangements and also on a Monetary History of Britain between the wars have not been published. This work, might still be of interest and helpful to other researchers and so I have included them in this collection.

I remain very much a monetarist in the sense that I remain strongly of the view that the supply of money has a significant effect on economic activity and money supply targets should be an objective of monetary policy given flexible exchange rates. It is matter of regret, that despite all my efforts at persuasion, money supply growth in South Africa remains endogenous to economic activity and highly pro-cyclical and on balance monetary policy has de-stabilised rather help stabilise the SA economy.

The performance of monetary policy since 2000 does not in my judgment represent an improvement on the earlier record. The continued focus on interest rates as the instrument of monetary policy and the neglect of money supply growth continues to lead to highly procyclical money supply growth. Furthermore inflation targeting adopted in the early 2000's, given significant exchange rate shocks in both directions, has added to the pro-cyclicality of monetary policy and money supply trends. Inflation tends to follow the exchange rate and interest rates follow inflation in pursuit of inflation targets. Accordingly interest rates have been raised as the economy slows down and are lowered as the economy picks up momentum. The significant shocks that are reflected in nominal and real exchange rate weakness (a rate of exchange that deviates from purchasing power parity exchange rates) bring higher prices and temporarily higher inflation that will tend to slow the economy down. Vice versa the shocks that strengthen the rand reduce inflation and help the economy pick up momentum.

Inflation targeting, without real exchange rate stability, is a very poor basis for monetary policy as the case of South Africa should prove. It means that interest rates increase after an exchange rate shock has caused higher inflation- and slower growth as higher prices absorb spending power. The opposite happens when a positive exchange puts downward pressure on prices and inflation that in themselves help stimulate more spending that is then further encouraged by lower interest rates. Inflation targeting, without regard to the supply side shocks that lead inflation higher or lower, makes interest rate movements pro-rather than counter cyclical.

Furthermore changes in policy determined interest rates in SA have had no predictable influence on the exchange value of the rand. Therefore interest rate adjustments that have uncertain effects on the exchange value of the rand will not influence inflation in any predictable way. Interest rate settings can however affect the state of demand in the economy.

Notwithstanding these observable facts of economic life, monetary policy in South Africa continues to chase exchange rate movements that are beyond the control of the monetary authorities and that lead inflation higher or lower. These arguments have been made in a conference paper presented to the Economic Society in September 2009. (See, *The global forces that drive SA's financial markets from day to day- an analysis with the implications drawn for monetary policy* (2009) The abstract gives more detail of the approach taken in this paper

Abstract

This study demonstrates with the aid of single equation regression analysis the role global capital markets play in determining the behaviour of the Johannesburg Stock Exchange (JSE ALSI) the Rand/ US dollar exchange rate (ZAR) and long term interest rates in South Africa on a daily basis represented by the All Bond Index (ALBI) or long term government bond yields represented by the R157. It will be shown that since 2005 the state of global equity markets, represented in the study by the MSCI Emerging Market Index (EM) has had a very powerful influence on the JSE. The EM Index is shown to have had a less powerful yet statistically significant influence on the ZAR while it is also demonstrated and that conditions in global capital markets, and the ZAR have had some weak but statistically significant influence on the direction of long term interest rates in South Africa. It will be demonstrated that movements in policy influenced short term interest rates, have had very little predictable influence on share prices, the ZAR or long term bond yields. The causes as well as the consequences of the ineffectiveness of policy determined interest rates for monetary policy are further analysed.

Early work and early inspirations; Why monetary economics?

My involvement in monetary economics began in the mid nineteen sixties when, as a very young and very Junior Lecturer at the tender age of 22, the theory of money and the best practice of monetary policy began to engage my mind. My special interest in money was perhaps in the mixture of theory and practice that it presented.

I recall the impression W.T. Newlyn's, Theory of Money ⁱmade upon me very early in my career. I liked to joke that thanks to Newlyn, I had became a monetarist before Milton Friedman himself- or at least before he and Anna Schwartz published their seminal Monetary History of the US in 1968. Though Friedman's most influential paper on the Quantity Theory was first published in 1956. ⁱⁱ

Milton Friedman had argued that the Quantity Theory that related changes in price levels to previous changes in the money supply, was a theory about the stability, that is the predictability, of the demand for money. It is the excess of the supply of money provided ultimately by central banks over the demand to hold money (not simply the supply of money) that influences economic activity and prices.

It is an observation that I have repeated whenever the opportunity presented itself as readers will be able to attest in this collection - including in one memorable moment, being able to make the self same observation to Milton Friedman himself in conversation. Friedman in had expressed some frustration with the unpredictability of the velocity of circulation (Y/M) of USM2, his favoured monetary aggregate. I piped up that it was you Milton that had made it very clear that if we could not predict the velocity of circulation of money (Y/M) the reciprocal of the demand for money, there would be no useful predictions that could be made about changes in the supply of money.

In addition to the influence that the great Milton Friedman had on my thoughts on money I should cite Don Patinkin'sⁱⁱⁱ comprehensive Money, Interest and Prices, as very helpful for my thinking about money in a thoroughly general equilibrium way.

It was a work that I got to know very well when I used it as a text in my senior classes in monetary economics. My understanding of the wealth effects of real money as well as the recognition that a model with wages and prices that are rigid in the downward direction is a special case, has its origins in Patinkin's work.

My association with the thoughts and insights of Allan Meltzer, in particular the sabbatical year 1978-79 I spent under his sponsorship at Carnegie Mellon University in Pittsburgh, were most important for my progress in economics. It was Allan Meltzer who made me aware of the importance of distinguishing between the demand for and supply of money and the demand

for and supply of bank credit for an understanding of the behaviour of the monetary system and the role played by central banks.

I drew on his insights about the true character of the thoughts of John Maynard Keynes and on his deep knowledge of the monetary history of the US, especially the role played by free reserves in the banking crisis of 1929-1932.¹ Another important influence on my development was G.L.S Shackle and especially his Epistemics and Economics (1972)^{iv} Understanding Keynes and finding differences with his view of the world was an important part of my research programme as readers will recognise. We were by no means all Keynesians- but we took Keynes himself and his General Theory very seriously.

In my inaugural lecture of 1983 (1983) on being appointed Professor of Economics at the University of Cape Town, I paid homage to those whose ideas and support had been crucial encouragement for my career in economics. I also attempted then to explain my research programme and my interest at the time in the mechanics and influence of the dual exchange rate system that was then applied in South Africa. (See, The Decade of Inflation in South Africa (1983).

My interest in financial economics since then owes much to my long friendship with Joel Stern of EVA fame who fortunately spends a good deal of time in Cape Town. It was he who has helped most to broaden the questions I would ask and attempt to answer about the behaviour of financial markets.

My most productive and congenial collaboration with Graham Barr has continued uninterruptedly for more than thirty years as will be noticed from our many joint authorships. More recently the involvement in my research of Christopher Holdsworth, my colleague at Investec, has been very helpful in assisting my research.

My research programme has benefitted greatly from the deeper knowledge of econometrics and statistics and its successful application that my co- authors brought to our research efforts. I am hopeful that my close colleagues would say that my willingness to ask the appropriate questions of the economic time series that we modelled and their interpretation was essential to our joint enterprise.

I like to opine, following Allan Meltzer, that the best economics consists of asking the important questions and being able to answer them effectively- helped by mathematics and statistics. Both are necessary for good economics - good questions and good answers aided by good technical practice.

¹ This knowledge has been incorporated into his monumental study of the History of the US Federal Reserve.See

Interesting modern times for students of monetary history

The importance of the demand for as well as the supply of money has become very obvious again, given the demand for cash reserves by US Banks, post the GFC, hugely in excess of the cash reserves the regulators require them to hold. The link between changes in the cash supplied by the Fed and the economy therefore has been broken by the unprecedented increase in the demand for cash by the US banks after the crisis of 2008.

My published models and analysis of the money supply process and of the supply of bank credit always allowed for the role played by excess reserves. But we could not have anticipated just how excessive these demands would be in the US after the financial crisis of 2008 broke. Nor could we have predicted how much cash the Fed would be prepared to infuse into the systemthough we approve of their actions.

The Global Financial Crisis (GFC) has made these recent times especially interesting for students of monetary history, monetary policy, and thoughts about money and its consequences for the real economy. If interesting times are a curse to those who hope to survive them, a financial crisis offers opportunity to those for whom the study of the actions and reactions of central banks have been a life time preoccupation, as they have been mine.

My response to the financial crisis of 2008 was presented to a conference in New York in April 2010 organised by the University of Rochester. Chris Holdsworth contributed much to this effort. A version of the conference paper was subsequently published in the Journal of Applied Corporate Finance, (JACF) now published by Morgan Stanley, as *Lessons from the Global Financial Crisis – or why Capital Structure is too important to be left to Regulation*. (2010) Donald Chew's a meticulous editor of the Journal of Applied Corporate Finance (JACF)was most helpful, as he was before when I published under his editing in the JACF. The executive summary of this paper is shown below.

Financial crises will happen periodically in unpredictable ways. The emphasis here is not how to prevent but how to cure a crisis. The wisdom of Walter Bagehot is drawn upon. That is to flood the system with liquidity and to do all that could be done to keep open the capital markets. A wisdom wilfully and disastrously ignored by the Fed of 1929-33 that thought the financial system should best be left to purge itself of its excesses. The Bagehot lessons that were however well understood by the Fed and US Treasury called upon to successfully manage the crisis of 2008.

The capital of consequence that stands between financial institutions and their demise is not the capital on their books that regulators focus on, but the market value of their equity capital. The ability to raise capital (especially from current shareholders who otherwise stand to lose all their capital) from the market place may become essential to the purpose of staying in business as the recent crisis has demonstrated.

It is shown using a variation of Robert Merton's option pricing model how and why share price volatility associated with a financial crisis threatens solvency and how companies can measure their rising default risks and act in good time to raise fresh capital and adapt their capital structures to cope with depleted balance sheets. Regulations designed to prevent, or make future crises less likely (which may be wishful thinking) should not threaten the profitability of financial activity to the point where raising fresh capital makes no economic sense.

Early work

My first research paper appeared in the SA Journal of Economics in 1968. The *Money Supply and the Inflationary Process* (1968) was awarded the J.J.I. Middleton prize by the Economic Society of SA for the best first article published in the Journal that year.

The work is long by modern standards. My earlier papers strike me now as all rather long reads that covered too much ground that included too many ideas. The principal contribution of this first effort was probably its analysis of the sources of additional cash for the system by way of a stylised balance sheet of the SA Reserve Bank. This heuristic has stood me in very good stead ever since and proved very useful when appearing before students and other audiences in the wake of the GFC.

Monetary and Economic History

My interest in history and economic history was stimulated by Professor H.M. Robertson, (Robbie) who was head of the Department of Economics at UCT when I was a student. He offered me my early opportunity in academic economics, as a Junior Lecturer in the Department at the tender age of 22, soon after I had completed my Honours degree.

This was a completely unexpected vote of confidence for which I will always remain very grateful. Without his encouragement my life would surely have taken a very different course. I regard my life as an academic economist at the University of Cape Town as a fortunate and indeed privileged one. There are no regrets at all, only a sense of gratitude for the opportunities it gave me to follow my muse and my great interest in the subject of economics and its practical application to South African issues. Since 2001 from being a full time academic and a part time business consultant I have become a part-time academic providing courses on the Economics of Financial Markets to the School of Economics and the GSB at UCT and a full time consultant to Investec. This involvement as a participant in the financial markets has proved to be a very stimulating late change of life.

Robbie gave the most wonderfully careful and comprehensive lectures and I was captivated by the rich detail of his accounts of SA economic history. Hopefully I succeeded in providing interesting detail in my work on monetary history of which he would have approved. It was a field in which I was to labour very diligently, especially in the seventies. As mentioned much of this work, to my great frustration, failed to find a publisher and this blog provides me with an opportunity to put the work on the record.

I published two papers on South African monetary history and the history of monetary policy in the South African Journal of Economics (SAJE) in 1970 and 1971. *The Rixdollar and the Foreign Exchange* (1970) closely examined the period between 1780 and 1840 when the Cape adopted a pure paper currency and then after 1830 returned to a fixed exchange rate linked to sterling. The subject matter offered a most revealing case study for a monetary economist. The research called for much time in the Cape Archives and the (again) very long paper offers much detail about these early times at the Cape as well as their interpretation as a case study in monetary economics

My next contribution to the SAJE came the following year was a history of monetary policy in SA. The Evolution of Monetary Policy (1971) was happily included in a festschrift, edited by Marcelle Kooy, in honour of H.M. Robertson.

The understanding I brought to this paper was the importance for monetary policy of the choice of the monetary standard. That fixed exchange rates made monetary policy and the direction of interest rates and the money supply dependent on the balance of payments. The paper pointed out that despite the introduction of the SA Reserve Bank as the central bank of South Africa in 1919, the SA monetary system remained part of an integrated financial system with the SA banks headquartered in London. This denied the SARB the ability to influence money supply or interest rates independently of conditions in the London money market. This was another long paper that drew on the evidence presented to a number of commissions and enquiries that considered the appropriate the monetary regime for South Africa.

In a series of papers written between 1970 and 1975 I attempted to describe and interpret the financial and banking systems of the Cape Colony in the second half of the nineteenth century. This led to two unpublished papers *Cape Colonial Finance* (1974) and *the Cape Bank Act of 1891* (1975) I also extended this research to an analysis of British colonial finance in general and the London market in Colonial debt that also failed to find a publisher. *Balance of Payments Relations between Britain and some Dependent Economies* (1975)

The Cape Bank Act, as I explained, was an exercise in capturing a market for Cape Government debt. And Cape Colonial Finance, raised on consistently improving terms in London, was directed mostly towards the funding of a railway system that owed its later success to the

discovery of diamonds in Kimberly and gold on the Witwatersrand. Raising funds in London to develop the infrastructure in the colonies was the consistent feature of the Financial Arrangements of the Canadian provinces and the Australian States as well as at the Cape. The results could e described a very successful for lenders and borrowers.

When at Carnegie-Mellon University in 1978-79 I attempted a rational expectations and revisionist interpretation of Britain between the wars. This was entitled *The Origins of Keynesian Mythology; Britain between the wars. (1979)* The attempted revision was of the well established Keynes' view of the interwar period that was so influential.

Keynes had blamed the post First World War economic problems of Britain on Churchill's decision to return to the Gold Standard in 1925 at the pre-war parity. This according to Keynes overvalued the British pound disastrously by 10%. An overvalued relative to purchasing power parity of this order of magnitude does not seem a great deal by modern standards. However given the presumed rigidity of prices and wages in the downward direction, as Keynes did, and convinced the world of economics accordingly.

My paper traced the twists and turns of monetary policy in the post first world war period. The decision to return to the gold standard, both if and when, could not have been expected with any degree of confidence by participants in the financial markets and the real economy as I demonstrated in the paper.

This it was argued made rational expectations or accurate predictions by banks and businesses of the course of economic policy at the time very difficult to make. This uncertainty it was contended contributed to the poor performance of the British economy of the time. Economic policy, given a rational expectations view of the world should be highly predictable to enable decision makers to make the right economic judgments in the light of the expected policy action.

Policy surprises are to be avoided if an economy is to enjoy a high degree of stability and this was not the case in Britain before the return to the gold standard in 1925. The persistently high levels of unemployment in Britain between the wars, was attributed in the paper to relatively high unemployment benefits and not to any permanent deficiency of aggregate demand or a failing labour market. This it will be appreciated is a very un-Keynesian view of the economic history that formed the backdrop to Keynesian economics. South Africa followed Britain back on to the gold standard in 1925 and briefly remained on the gold standard after Britain left in 1931. These South African reactions were covered in my *Evolution of Monetary Policy in SA* referred to previously.

The analysis of exchange control in South Africa

Exchange controls applied to South Africans and their financial institutions and extended to foreign investors in 1961, broke the directly connected financial flows between London and Johannesburg. With exchange controls an independent monetary policy, that is independent of the balance of payments, allowing flexible exchange rates, became a possibility. But the choice of fixed or pegged exchange with sterling or the USD, continued to make the SA financial system and the money supply highly dependent on the balance of payments. Balance of payments (mostly trade balance) strength or weakness) continued to set the direction of interest rates and the money supply. The inability of South Africa to fund persistent current account deficits with continuous capital inflows in the seventies and eighties meant that demands in the economy that led to a surge in imports and a current account deficit had to be rapidly contained with higher short term interest rates.

Capital controls before 1995- how they affected the financial markets

The links between the SA financial system and global capital markets before 1995, but for a brief interlude between 1983 and 1986, was formalised through a dual exchange rate system. Capital transactions with the rest of the world were conducted in financial rands (FR) and the demand for and supply of FR determined their exchange value for USD. The FR traded at a lower foreign exchange rate, that is at a discount to the commercial rand (CR), so augmenting the returns earned by foreigners on SA assets by the ratio of the FR/CR. These augmented returns compensated for the risks of holding SA domiciled assets.

Commercial rands were used for imports or earned for exports and for paying interest and dividends. Or in other words foreign owned assets domiciled in SA were held in a more or less fixed pool of assets, the foreign demand for and supply of which determined their USD values and so the FR discount. The financial rand mechanism linked the two markets that established different USD values for the same SA assets- a lower value for foreign holders and a higher value for SA residents. If foreigners became keen to disinvest from SA this would weaken the FR and widen the discount. There could be no obvious or legal outflows or inflows of capital from SA should the sense of SA risks alter and so the value of the commercial rand was shielded form capital flows.

The commercial rand, so shielded from capital account shocks, traded consistently close to its purchasing power value. Real exchange rate volatility (of great magnitude) became a undesirable feature of the economy capital after controls on foreign investors and more gradually on domestic portfolios were relieved in 1995.

The precise nature of the financial rand and its influence on interest rates the financial markets and the real SA economy became an important topic for research (as indicated in my inaugural lecture referred to previously. See also, *A Theory of the Financial Rand Discount* (1983) *Interest rates, the exchange rate, and money supply in South Africa* (1983) *The gold price and the forward rate of interest* (1986)

Monetary policy in the seventies and eighties

The South African economy in the early seventies was highly dependent on the gold mining sector and so had a particular interest in the breakdown of the gold standard. I analysed the SA attempts to keep open the gold window at IMF in a paper entitled *The Gold Agreement and The Future Of Gold.* (1970b). The subsequent explosion of the price of gold through the stagflationary seventies made the official concern about the price of gold falling below \$35 a (Troy) ounce appear somewhat hysterical.

My earlier work included a critical review of the *Franszen Commission on Monetary Policy* on the SA Financial and Monetary System (1971). This report attempted to justify the direct controls of interest rates and credit supplies that was so characteristic of SA monetary policy of those times. I took great exception to this way of thinking for my usual reasons, as will be clear from my review and other writings.

A later monetary commission under the direction of Gerhard De Kock, later to be appointed Governor of the Reserve Bank, was much more market friendly in principle. The De Kock Commission did not however lead to less pro-cyclical money supply polices.

I suppose it has to be conceded that the pendulum regrettably has swung back in favour of more rather than direct controls of the banks and the financial system. The GFC has proved a great boon to regulation and regulators of banks and financial markets generally.

Money supply and expenditure in SA; Explaining the consistently procyclical behaviour of money and credit supplies in SA

In 1980 the gold price averaged \$600 an ounce, that is double the average gold price of 1979.Gold output then accounted for over 50% of all exports from SA and the gold board dominated the JSE. The boost to the economy and its balance of payments provided by dramatically higher gold prices in the late seventies and early eighties was accompanied by huge surges in the supply of money and bank credit. By late 1981, despite the much higher export revenues helped by a gold price that remained around the USD600 level for a further

year, imports had caught up with exports and the current account of the balance of payments was in deficit and interest rates were well on their way higher.

I regarded this failure to control the supply of money as a predictable consequence of the methods employed by the Reserve Bank. These had made the money supply dependent on the demands for money and credit rather than controlled independently of it. Effective control of the supply of money and credit at that time would have demanded a more valuable rand.

Much of my work on monetary policy in South Africa was designed to prove why it was a near impossible task to manage money and credit in a usefully counter-cyclical way using short term interest rates as the principle instrument of monetary policy. See for example, *The demand for and supply of high powered money, money and bank credit, (1979).*

This work had been preceded by a conference paper I gave to the Konstanz Conference on Monetary Policy organised by Allan Meltzer and Karl Brunner in 1976. Arnon Hurwitz contributed some impressive econometric results designed to help verify the model of the money supply process that was presented. See, *The money supply process in South Africa, Explanation, Verification, Implication (1976)*

I was told later by one of the attendants at that conference that our use of a policy reaction function for the SA Reserve Bank was then highly original (1976) This conference paper is included in this collection

My most comprehensive effort to explain precisely why hoping to control the money supply in South Africa, using short term interest rates as the instrument of policy, was a hopelessly difficult task was included in *The De Kock Commission Report: A Monetarist Perspective (1986)*

In this paper I provided a full model of the money supply process and solved the model for the equilibrium overdraft rate and the money supply. I demonstrated with the aid of these reduced form equations that in order to achieve money supply objectives with interest rate settings, the authorities would not only have to estimate accurately the income elasticity of the demand for money and at least all the many other elasticities identified in the two equations- a clearly formidable if not impossible task, as the subsequent pro-cyclical behaviour of the money supply would confirm.

The explanation of the money supply process in South Africa and its perverse (pro-cyclical) implications for the money supply was intensively covered in my books South African Economic Issues (1982) and in Understanding Capitalism (1994). These chapters Money Matters (1994) and South African Monetary Policy (1982) are included here.

A number of attempts were made with Graham Barr to measure why money mattered in South Africa using the St Louis equation. We were able to show how pro-cyclical money supply had been in South Africa with narrow money measures providing the best predictors of GDE and household spending. (1982) (1989) (1989b) (1993)

This work included an attempt to separate monetary causes and effects. That is to estimate whether the money to expenditure and income link was stronger than the income to money link- given the accommodative nature of money supply responses. (*The Application of a Vector Autoregressive Model to Money Income and Price Links in the SA economy* (1990) We reported that the money to income link was stronger than the reverse income to money influence.

The implications of our efforts to explain and measure the impact of money on the economy could be summarised from a reply we made to the Reserve Bank in its comment on our work and to Basil Moore, an old friend and neo-Keynesian who remains firmly of the view that interest rates have no influence on the demand for or supply of credit.

Our calculations demonstrated that the growth rates of the narrower measures of money were more highly correlated with the growth in GDP and especially GDE than were wider measures of money growth. We had concluded that there was little empirical evidence for the Reserve Bank view that M3 would be a superior target to M0 for the purposes of monetary policy.

We include our full comments of the time on the responses of the Reserve Bank and Moore. This provides a good summary of the issues we raised and the conclusions we had reached (1990).

Barr and Kantor (1989) considered an econometric analysis of the efficacy of the current SA Reserve Bank monetary targeting procedures. The analysis focused on the predictability of various measures of economic activity vis Gross Domestic Expenditure and Gross Domestic Products, using a range of monetary measures viz. Reserve Bank note issue, M0, M1, M1A, M2 and M3, as predictor variables. In particular the article demonstrated that the growth rates of the narrower definitions of money are more highly correlated with the growth rates of measures of GDE and GDP growth than are wider measures of growth. It this concluded that there was little empirical evidence for the Reserve Bank view that M3 is a superior target to M0 for the purposes of monetary policy.

Barr and Kantor (1989) do not address the issues that Professor Moore raises. Professor Moore in a comment on the article gives a short review of a mainstream macro-economic debate viz the degree of exogeneity of money supply to the macroeconomy. He offers the neo-Keynesian view that the monetary measures considered above are endogenously demand determined.

Barr and Kantor (1989) do not address the issues that Professor Moore raises. Rather our intention was to provide a complete analysis of the extent to which published Reserve Bank monetary measures correlated with Reserve Bank measures of economic activity and how this might be reconciled with a Reserve Bank view that narrow monetary measures (and M0 in particular) correlated poorly with economic activity.

As a practical matter, movements in M0 over the past several years have been found to correlate relatively poorly (more so than other monetary aggregates) with movements in macro-economic variables such as nominal gross domestic product or the general price level... (SARB Quarterly Bulletin, March 1988 p.16-17) as quoted in Barr and Kantor (1989 p. 292).

We believe that the analysis of Barr and Kantor (1989) would certainly be inappropriate for addressing the issue of the extent of the endogeneity of money in the South African economy as raised by Professor Moore. The reduced form econometrics approach used in that article has limited applications. In a more recent article Barr and Kantor consider the application of a Vector Autoregression Approach to the modelling of the South African economy and in particular consider the bi-directional nature of the causal link between money and economic activity (Barr and Kantor, 1990). This article demonstrates that the relationship between money and economic activity has a bidirectional causal component and that although the money-income link was stronger than the income-money link, money certainly has a strong endogenous behavioral component.

Such a result was certainly no surprise. In another study to which Moore refers (Kantor, 1986) the sources of endogenous money supply growth were fully identified in a general model. Where we and Moore would differ and where monetarists generally would differ with neo-Keynesians is whether such endogeneity of the money supply could be avoided by adopting a different set of procedures and institutional arrangements for controlling money supply growth.

Our argument is that it would be possible for the monetary authorities to control some narrow definition of money. Such controls could be exercised with or without reserve requirements. Essential for such control would be the denial of any automatic access by banks to the lending window of the central bank. If for any reason the commercial banks were to suffer a loss of cash to the public they would be forced to draw on their deposits at the central bank. If the commercial banks total cash reserves then declined below their desired or required levels the banks would be forced to restrict their lending. The important point is that a central bank need not simply accommodate demands for cash from the banking system. That central banks often do is not a law of nature but the result of a particular set of historical and political developments.

The conclusion of our Vector-Autoregression study was that while money in South Africa has been partly endogenous, it is possible to identify predictable links between narrow money and the real economy. The only way to fully resolve the issue of the degree of endogeneity of money would be to set up a hypothetical experiment in which the central bank manipulated the money growth levels, but that all other influences on the economy, (for example interest and exchange rates) were allowed to be fully market determined, and to observe the resulting effects on the real economy. One form such an experiment could take would be for the central bank to auction off any additional supply of reserves on a regular basis. Banks could borrow reserves from each other or acquire them at related price from the central bank at its regular auction.

On being reminded of this work it seemed a good idea to up date these estimate of the money economic activity relationships. We discovered that while the results held for the extended period 1980- 2010, M3 rather than the note issue equivalent to the money base adjusted for reserve requirements, became the superior predictor of economic activity in the past decade. This is because the banks reduced their demand for vault cash in response to a ruling by the Reserve Bank that vault cash would no longer qualify as part of the banks required cash reserves after 2005. And so the demand for notes declined and the broad money/ narrow money multiplier increased while the correlation between the growth in narrow and broad money declined. As we have always recognised the demand for as well as the supply of central bank money matters. These results and their interpretation have still to be written up.

The introduction of market determined exchange rates in the late eighties, under the influence of Gerhard de Kock, a welcome reforming Governor of the SA Reserve Bank, gave the SA authorities more independence to set interest rates. However an important constraint on the pace of economic activity remained the ability to raise capital from abroad. This ability to fund growth with the aid of foreign capital was tightly constrained until SA made its transition to democracy.

With Graham Barr we provided a small general equilibrium model of the SA economy to identify the SA Business Cycle influenced by the money supply and wealth effects but constrained by the balance of payments. *The South African Economy and its Asset markets- An Integrated Approach* (2002) We offered an out of sample test of the model and compared the results (favourably) to a set of time series forecasts.

Abstract

This paper considers the development and estimation of a structural econometric model of the South African economy by attempting to identify the most important forces and feed back effects that link the real South African economy to the global economy and asset markets. The model developed captures the relationships between an important set of South African economic variables including the domestic share and housing markets with a relatively small number of equations, but despite the simplicity of its structure, it is shown that the model can consistently forecast the growth rate and turning points of these variables up to one year ahead. The out of period forecasts of the model compare favorably to those of 2 naïve time series models. The model is distinctive in that it incorporates wealth effects, proxied by the cycle of the domestic share market and domestic house market, to help explain the growth in private consumption and investment spending and incorporates feed back loops between the balance of payments, interest rates and the growth in money supply.

The New South African economy and its implications for monetary policy and financial markets

It was more or less at this time (the early 2000's) that the balance of payments was to become much less of a constraint on the economy and less of force on SA interest rates and monetary policy reactions. The large current account deficits and capital inflows relative to GDP that were realised during the sustained economic boom of 2003- 2007 indicated that the economy has undergone a structural change of great consequence. The exchange rate to a much greater degree became independent of the direction of the balance of payments.

Exchange rate shocks after 1998 came to have very important influences on the financial markets and the real economy after 1995. These shocks had their origin both offshore and on shore and understanding how exchange rate volatility affected the economy and its financial markets and how best to manage exchange rate volatility became the focus of much of my analysis.

Papers written with Graham Barr and Chris Holdsworth drew attention to alternative causes of real exchange rate weakness and strength and their consequences for the share market. The exchange value of the rand would respond to global events- for example commodity price trends or emerging market shocks- and also to SA specific risks. These would have very different implications for the value of companies listed on the JSE. Owners of SA resource companies would benefit most when the rand weakened for SA specific reasons and commodity prices remained buoyant. Higher metal prices that caused rand strength would not hurt the resource companies but would be more helpful to the SA economy plays on the JSE. They would benefit from the increased demands that came with a stronger rand and the lower inflation and interest rates that followed a stronger rand. Rand weakness that accompanied less favourable global forces- including a decline in metal prices – would be unhelpful for all sectors of the JSE including the Resource sector- and especially unhelpful for the SA economy plays as rand weakness leads more inflation and inevitably higher interest rates given inflation targeting. See The effect of the rand exchange rate on the JSE Top-40 stocks – An analysis for the practitioner (2007) and Portfolio Strategies for hedging against Rand weakness with GDI Barr and C Holdsworth (2007) also The Impact of the rand on the value of the Johannesburg Stock Exchange (2005)

The abstract of the paper written in 2005 below will indicate the flavour of this work.

The relationship between the foreign exchange value of the rand and the Johannesburg Stock Exchange (JSE) was put to a particularly interesting test over the period 2000 to 2003 when the rand first collapsed and then recovered. In this paper, we look at the effects of the nominal and real exchange rate changes on the nominal and real value of the overall JSE market and then in more detail at particular counters that exhibit common characteristics with respect to the rand exchange rate. These we define as either: rand hedge stocks, that is, those companies with mostly US dollar revenues and \$costs; rand leverage stocks, that is, those companies with predominantly US dollar revenues and rand costs; or randplays, that is, those companies that earn almost all of their profits by generating rand revenues and incurring rand costs. We report on the impact of the rand on the value of the largest 40 stocks on the JSE and classify these stocks according to the criteria mentioned above. In addition, we explain how rand plays can be expected to lose rand value as the rand weakens, despite higher inflation and an increase in the rand value of the JSE All Share index and that, counter-intuitively, the foreign currency value of Richemont, a pure rand hedge company, can be influenced by the foreign exchange value of the rand, a phenomenon we attribute to an investor constituency that includes a large SA component.

Allowing interest rates to rise or fall with exchange rate shocks and the lack of good sense in inflation targeting, absent exchange rate predictability, was much questioned in a more recent work. *Trevor Manuel and the Markets (2004)* This scepticism was fully detailed in a paper *The global forces that drive SA's Financial markets from day to day - an analysis with the implications drawn for monetary policy (2009)* referred to earlier.

Valuation Exercises

The procedures and class of models that I use to value equity markets were explained in a paper *Price earnings – are they a guide to value (1998)*

This paper tests whether there is an equilibrium relationship between prices and earnings on the Johannesburg Stock Exchange (JSE). Such a relationship would hold if the JSE Index and index earnings were cointegrated. A full explanation of the technique of cointegration is provided. It is shown that prices and earnings on the JSE are not cointegrated, which is aconsistent with similar results obtained for the New York Stock Exchange. The paper then offers a more general explanation of prices on the JSE to include, in addition to earnings, the influence of world markets and political and exchange rate risk, on the value of the JSE as represented by its Industrial and Financial Index. It is found that the variables of these models of the JSE are in fact cointegrated. This means that there have been forces driving long term equilibrium values on the JSE. Movements away from such equilibrium values have represented market beating opportunities. Current prices are thus not the best estimate of future prices, suggesting that the JSE cannot be regarded as an efficient market.

I wrote a guide for my classes, *The Investment Decision- Adding Value for Shareholders* (1999) that has been included in this collection. Students and practitioners may find this summary useful.

The SA financial system and the structure of ownership and control; The difference made by political transformation

I published a description of the financial system in SA, *The South African Financial Structure* (1972) I had paid close attention to the pattern of savings in SA especially to the role played by corporate savings. See *The Changing Pattern of savings in South Africa* with GDI Barr (1994).² A later paper linked his work with the analysis of the structure of the SA conglomerate that was so much a feature of SA corporate like in the seventies and eighties. *Savings and Investment-ownership and control in South Africa*, (1992)

This research programme on SA corporate ownership and control was conducted with the very active engagement of Jos Gerson and Graham Barr and led to a number of publications as well as Gerson's Ph.d thesis for UCLA. See *Shareholders as Agents and Principals: The Case for South Africa's Corporate Governance System* (with GDI Barr and Jos Gerson (1995) The conglomerate or group structure gave way to the opportunities offered by access to global financial markets only available to SA business after 1994.

The political transformation after 1994 made SA business legitimate participators in global financial markets. This combined with the relief of capital controls saw the break up of the conglomerates that had characterised the SA structure of ownership and control that we described and analysed.

Conglomerates that had served the function of finding an outlet for excess capital locked up behind capital controls gave way to much more specialised companies listed on the JSE and on other stock exchanges. These large JSE listed companies took the opportunity to become much more specialised by accessing global markets for their goods and services and for capital to

² This paper is still to be added to the collection

finance their growth. These efforts to specialise for global operations, some more successful than others, were to make the companies listed on the JSE, by market value, more exposed to the global than the SA economy. See After Black Rule- See also my research on the valuation of a conglomerate or investment trust that analysed the discount to net asset value and the causes of changes in this discount, including the impact on valuations of unbundling listed investments. See, *The Discount to Net Asset Value, Unbundling and Shareholder Interests*, with GDI Barr (1994)

This paper received an award from the Journal published by the Accountancy Profession in South for the best article published that year. See also Adding Value for Shareholders in South Africa; An Analysis of the Rembrandt Restructuring (2001) a later application of these ideas that was published in the Journal of Applied Corporate Finance.

I published a paper with Jarred Castle on Tracking Stocks as an alternative to unbundling for the SA conglomerate (2001)

Rational Expectations

My most important work in the seventies, certainly the work that attracted more attention outside of South Africa than anything else I wrote was on the theory and application of the then very innovative rational expectations approach to macro-economics and the implications it had for monetary and fiscal policy. I was able to work on the topic intensively while on leave at Carnegie-Mellon University with the very active encouragement of Allan Meltzer. Mark Perlman of the University of Pittsburgh and Editor of the Journal of Economic Literature published by the American Economic Association was enthusiastic about the earlier drafts of my *Rational Expectations and Economic Thought* that I circulated and presented at a number of University seminars across the US and this led to publication in the Journal of Economic Literature. (1979) Carnegie-Mellon was a very good vantage point from which to understand and appreciate Rational Expectations and put it into its history of thought context, as I attempted to do in my paper.

Much of the path breaking work on rational expectations had been undertaken at Carnegie Mellon. Robert Lucas had moved to Chicago the year before I arrived. But Ed Prescott and Fynn Kydland were both on the Faculty at that time and like Lucas were also to receive the Nobel prise for their work within the rational expectations paradigm.

I had earlier, under the influence of GLS Shackle, taken a different path to the influence of forward looking expectations on the logic of fine tuning monetary or fiscal policy. *Is there a rationale for stabilisation policy?* (1979) was published after Rational Expectations and

Economic Thought. I had sent an early draft to George Shackle and received a most complimentary response from him.

There were a number of other attempts made to apply the rational expectations framework in a South African setting and to correct some misconceptions about the theory. See *Testing rational expectations*: A Comment with Allan Ruskin (1982) and *A rational expectations analysis of the South African business cycle*, with GDI Barr (1983)

Further work on the history of thought included an interpretation of W.H Hutt's innovative and perceptive thoughts views on money in *Hutt's views on money* (1982) He was my teacher and the original inspirer of my taste for free markets.

A conference paper, The effects of inflation in South Africa, (1976) is also included here. Much reference was made in this presentation to the thoughts of Keynes on inflation.

Electricity Pricing

In the eighties I offered a critique of electricity pricing in South Africa guided by debt management principles, as had been recommended by the De Villiers Commission on Eskom (1988b) Inflation complicates the pricing decisions of public utilities with monopoly powers. However inflation should not be allowed to confuse the reality and allow a utility to rely excessively on current consumers to fund capital expenditure, as the De Villiers report recommended. The principle of not confusing investment and financial decisions was emphasised. The paper also demonstrated how replacement cost accounting could be abused to justify excessive charges. In a visit to Hong Kong in 1986 I had noticed similar replacement cost arrangements that led to too little debt on the utility balance sheet and excessive reliance on current consumers to fund capital expenditure. (1986)

This issue again became a live one in South Africa recently after Eskom finally ran out of generating capacity after years of excess capacity. The question of what was the right price to charge for electricity in South Africa to help fund new capacity was again being asked. Our answer (2010), that I worked out with the help of Graham Barr (who helped build a highly interactive spread sheet) and Andrew Kenny an engineer with specialized industry knowledge was widely circulated, including to the regulator (NERSA) A version of the answer we provided was published in Finance Week (2010a) and by Investec (2010b)

Post script; The theoretical core

Diligent students about to join the course *The Economy and its Financial Markets* I offer to post graduates at UCT may wish to prepare themselves for the lectures to come. I suggest in this regard attention be paid to my General Equilibrium Analysis that I used as the basis of my lectures on purer monetary economics in the late sixties and early seventies and made available to students, *A General Equilibrium Analysis of Monetary Policy* (1970)

I would also recommend the attempt I had made to describe and explain inflation in a comprehensive text book like way. The arguments made there about supply side and demand side shocks to prices and how the monetary authorities should react to these shocks still appear highly relevant today. We have updated the figures included in the original work.

To these works could be added a further text book type treatment of the *Investment Decision* – *Adding Value for Shareholders* that I circulate to my classes. The paper I wrote with Graham Barr, *Price earnings ratios on the Johannesburg Stock Exchange* – *are they a guide to value?* provides the fullest explanation of the valuation models I use to analyse the equity markets.

The chapters on monetary economics included in my book co-edited with David Rees, South African Economic issues (1982) provide models of and explanations of the money supply process could similarly be referred to by students seeking a text book treatment of the key ideas that guide my thinking.

ⁱ Newlyn, W.T. The Theory of Money, Oxford, Oxford University Press

ⁱⁱ Friedman, Milton Restatement of the Quantity Theory of Money, in Friedman, M (ed) Studies in the Quantity Theory of Money, Chicago, 1956

^{III} Patinkin, Don. Money Interest and Prices. Second edition New York, Harper and Row, (1956) 1965

^{iv} Shackle, George L.S. Epistemics and economics, Cambridge, Cambridge