Volume 30, Issue 3

Is money neutral in stock market? The case of Malaysia

Chin-Hong Puah Dr.
Faculty of Economics and Business, Universiti Malaysia Sarawak

Muzafar Shah Habibullah Professor Dr.
Faculty of Economics and Management, Universiti Putra Malaysia

Venus Khim-Sen Liew
Faculty of Economics and Business, Universiti Malaysia Sarawak

Abstract

The objective of this study is to examine whether the notion of monetary neutrality holds in Malaysian stock market. Our findings indicate that there is considerable evidence against the long-run neutrality (LRN) of money in Malaysian stock market. The important implication is that the stock market is inefficient with respect to money supply. Agents might have the opportunity to gain excess profit from the stock market using the information on changes in the stock of money to predict the movements in stock indexes.

I. INTRODUCTION

Stock market plays a significant role in the economic development of a country by acting as an impetus to economic growth. Its existence allows for efficient transfer of funds from economic agents in financial surplus to those in financial deficit. In particular, it facilitates long-term financing for both the public and private sectors, which are the engines of economic growth. As such, policymakers are very concern about the stock market reaction due to changes in macroeconomic variables in particular the money supply. It is important to determine the relationship between stock prices and money supply for the following reasons. Firstly, at the micro level, if money supply and stock prices are related, then investors can gain higher than average rate of returns from the stock market using the information on money supply changes. Meanwhile, at the macro level, it casts doubt to the ability of the market to perform its fundamental role of channeling funds to the most productive sector of the economy. Lastly, if the stock market is informationally inefficient with respect to money supply, then the monetary authorities can play an active role to stabilize fluctuation in the market (Habibullah *et al.*, 1998).

The debate regarding the role of money on the stock market is among one of the most controversial issues in macroeconomics study. Policymakers try to take effective measures in conducting the monetary policy as they expect that changes in money supply can significantly affect real stock prices. However, most economists argue that once inflation is built into people's expectations, monetary expansion will eventually lead to a higher level of prices. Therefore, they believe only unanticipated changes in the stock of money will produce real impact.

The relationship between stock returns and money supply has been extensively studied. Nonetheless, the empirical findings are inconclusive. Some studies find that there is a strong relationship between money supply and stock market (money does matter); while others show that monetary shocks do not have profound impact on stock market (money is neutral). In empirical literature, the inability of changes in the stock of money to affect real economic activity except the general price level is known as long-run neutrality (LRN) of money. Davidson and Froyen (1982), Mookerjee (1987), Jeng *et al.* (1990), Serletis (1993), Malliaropulos (1995), Gjerde and Sættem (1999), Puah *et al.* (2006), Kandir (2008), Alatiqi and Fazel (2008), among others, find that the monetary neutrality hypothesis prevails in the major international stock markets. This finding is in sharp contrast to Sprinkel (1964), the pioneer researcher in the study of money supply-stock market nexus, which discovers that the U.S. stock prices appear to be informationally inefficient with respect to money supply. Studies by other researchers which also report non-neutrality of money with respect to stock market include, to name some, Cooper (1974), McGee and Stasiak (1985), Fung and Lie (1990), Mookerjee and Yu (1997), Habibullah *et al.* (1998), Kwon and Shin (1999), Yamak and Kucukkale (2000), Wongbangpo and Sharma (2002), and Puah and Jayaraman (2007).

The objective of this study is to determine whether the notion of monetary neutrality holds in one of the major stock markets in the East Asia, namely the Malaysian stock market. This rapid growing market has a history of nearly eight decades. It registered a domestic market capitalization of US$325 billion in 2007, an amount almost doubled that of US$168 billion recorded four years before. It is expected that the stock market is going to play a more prominent role in capital raising exercise to lubricate the Malaysia economy in the next decade. In this regards, the current study examines if monetary policy could be used to promote the stock market performance in Malaysia. In previewing the findings, the results obtained indicate that Malaysian stock market responses to changes in money supply. Hence,

the expansionary monetary policy could be considered as an effective policy instrument to stimulate the stock market in Malaysia.

The remainder of this paper is organized as follows. Section I provides the introduction and the methodology is discussed in Section II. Section III presents the empirical findings and the concluding remarks are given in Section IV.

II. THE FISHER AND SEATER (FS) METHODOLOGY

The LRN proposition of two different definitions of money, namely M1 and M2, on real stock prices are examined in this study using the dynamic simultaneous equation model developed by Fisher and Seater (1993). Let m and y be the log of money supply and real stock prices respectively, the FS neutrality test can be represented as:

$$a(L)\Delta^{\langle m \rangle}m_t = b(L)\Delta^{\langle y \rangle}y_t + u_t$$

(1)

$$d(L)\Delta^{\langle y \rangle}y_t = c(L)\Delta^{\langle m \rangle}m_t + w_t,$$

where $\langle m \rangle$ and $\langle y \rangle$ denote the orders of integration of the money supply and real stock prices, respectively. Δ represents the first differences. L is the lag operator, and $a(L)$, $b(L)$, $c(L)$ and $d(L)$ are distributed lag polynomials. For the distributed lag $a(L)$ and $d(L)$, it is convenient to set the initial values $a_0 = d_0 = 1$, and for $b(L)$ and $c(L)$, b_0 and c_0 are not restricted.

The parameters of the second part of Equation (1) indicate that the stationary values of m, over time, can be used to explain the stationary values of y. Let $x_t \equiv \Delta^i m_t$ and $z_t \equiv \Delta^j y_t$, where i and j equal 0 or 1, FS then define the LRN in terms of the long-run derivative (*LRD*) of z with respect to a permanent change in x as follows:

$$LRD_{z,x} \equiv \lim_{k \to \infty} \frac{\partial z_{t+k}/\partial u_t}{\partial x_{t+k}/\partial u_t},$$

(2)

where u_t refers to an exogenous money supply disturbance and $\lim_{k \to \infty} \partial x_{t+k}/\partial u_t \neq 0$. If $\lim_{k \to \infty} \partial x_{t+k}/\partial u_t = 0$, there will be no permanent changes in the level of money and thus the neutrality proposition cannot be tested. $LRD_{z,x}$ expresses the ultimate effect of an exogenous money disturbance on z relative to that disturbance's ultimate effect on x. As such, the specific value of the $LRD_{z,x}$ depends on $\langle x \rangle$ and $\langle z \rangle$.

When $\langle m \rangle \geq 1$ and $\langle y \rangle \geq 1$, there are permanent changes in both m_t and y_t. If the variables have the same order of integration, $\langle m \rangle = \langle y \rangle$, $LRD_{y,m}$ can be treated as the long-run elasticity of y with respect to m and it can be evaluated using the impulse response representation of Equation (1). An interesting special case occurs when $\langle m \rangle = \langle y \rangle = 1$, such that $LRD_{y,m} = c(1)/d(1)$. LRN requires that $LRD_{y,m} = 1$ if y is a nominal variable, and $LRD_{y,m} = 0$ if y is a real variable.

When the vector $(u_t \; w_t)'$ of error term is $iid(0,\sigma^2)$, and the money supply is exogenous, the coefficient $c(1)/d(1)$ equals the frequency-zero coefficient in a regression of $\Delta^{\langle y \rangle}y_t$ on $\Delta^{\langle m \rangle}m_t$. The term $c(1)/d(1)$ can be approximated by $\lim_{k \to \infty}\beta_k$, where β_k is the slope coefficient in the following equation (see Fisher and Seater, 1993, pp. 412 for detail):

$$\left[\sum_{j=0}^{k} \Delta^{\langle y \rangle} y_{t-j} \right] = \alpha_k + \beta_k \left[\sum_{j=0}^{k} \Delta^{\langle m \rangle} m_{t-j} \right] + \varepsilon_{kt}. \tag{3}$$

Following the above specification, β_k, is the Bartlett estimator of the frequency-zero regression coefficient. When $\langle m \rangle = \langle y \rangle = 1$, Equation (3) can be estimated in following reduced-form:

$$(y_t - y_{t-k-1}) = \alpha_k + \beta_k (m_t - m_{t-k-1}) + \varepsilon_{kt}. \tag{4}$$

The inference about LRN propositions is based on the coefficient restrictions tests in the bivariate non-structural framework estimated using the Integrated Autoregressive Moving Average (ARIMA) model (Boschen and Otrok, 1994). LRN in this framework implies zero restrictions on the contemporary and lagged monetary variables in a bivariate regression on real macroeconomic variable.

III. EMPIRICAL RESULTS

Quarterly data of M1, M2, and the real stock price indexes, that is, Composite index, Finance index, Industrial index, and Mining index are employed in this study. Data for monetary aggregates are collected from various issues of Quarterly Statistical Bulletin of Malaysia published by Bank Negara Malaysia. The stock price indexes data are compiled from various issues of the investor digest. The data set covers the sample period ranging from the first quarter of 1978 to the fourth quarter of 2009 (1978:Q1-2009:Q4). All series are transformed into natural logarithm form.

As pointed out by FS, a meaningful neutrality test can only be constructed if both monetary and real variables satisfy certain nonstationary conditions. In particular, FS show that LRN tests are possible if the money and real variables series are integrated of order one, $I(1)$, and do not cointegrated. Thus, the order of integration of the series for money supply and real stock indexes has to be identified. As the results of unit root tests can be sensitive to the testing procedure and lag selection technique used, therefore, we check the robustness of our results by utilizing three different unit root tests with three different selection rules of the truncation lag parameter. The Augmented Dickey-Fuller (ADF) (Said and Dickey, 1984), Phillips-Perron (PP) (Phillips and Perron, 1988), and Kwiatkowski et al. (KPSS) (Kwiatkowski et al., 1992) tests are employed to check for the nonstationarity property of the data. The optimal lag lengths (k) for the ADF, PP, and KPSS tests are pre-determined by Schwartz Information Criterion (SIC), the automatic selection procedure of Newey-West (1994) for Bartlett kernel, and Schwert's (1987) $k = [4(T/100)^{1/4}]$ formula, respectively.

Results of the unit root tests are reported in Table 1 for the log levels as well as the log first differences of the series. We cannot reject the null hypothesis of a unit root for both ADF and PP tests in their levels at 5 percent significant level. For the KPSS test, however, the null hypothesis of trend stationarity can be rejected for all series at 5 percent level of significance. Thus, we conclude that all series have at least one unit root. Subsequently, we tested the null hypothesis of a second unit root in their first differences. All differenced series appear to be stationary, as the unit root null in ADF and PP tests are rejected, and also the null hypothesis of level stationarity in the first differences of the series in KPSS test cannot be rejected. Since all the three different unit root tests imply that each series has one unit root, that is $I(1)$, the LRN restriction $c(1)/d(1)$ is thereby testable.

Table 1: Results of Unit Root Tests

Variables	ADF[a]	PP[b]	KPSS[c]
	Level		
LM1	-2.431(8)	-2.318(7)	0.150(4)**
LM2	-2.298(1)	-2.363(7)	0.151(4)**
LRCI	-3.247(0)	-3.311(2)	0.200(4)**
LRFIN	-3.186(0)	-3.239(1)	0.211(4)**
LRIND	-3.204(0)	-3.238(2)	0.197(4)**
LRMIN	-3.406(0)	-3.425(2)	0.356(4)**
	First Difference		
LM1	-3.637(7)***	-11.110(7)***	0.051(4)
LM2	-8.697(0)***	-8.985(6)***	0.209(4)
LRCI	-11.934(0)***	-11.916(3)***	0.063(4)
LRFIN	-11.255(0)***	-11.271(3)***	0.069(4)
LRIND	-12.220(0)***	-12.210(4)***	0.052(4)
LRMIN	-11.976(0)***	-12.049(5)***	0.029(4)

Notes: LM1 and LM2 are natural logarithms of M1 and M2. LRCI, LRFIN, LRIND, and LRMIN refer to natural logarithms of real Composite index, real Finance index, real Industrial index, and real Mining index, respectively. Asterisks (**) and (***) denote significant at the 5% and 1% levels. [a, b, c] The optimal lag lengths were chosen based on Schwartz information criterion (SIC), the automatic selection procedure of Newey-West (1994) for Bartlett kernel, and Schwert's (1987) formula, where $k = [4(T/100)^{1/4}]$, respectively.

Before Equation (4) can be tested, we need to investigate the long-run equilibrium relationship between different monetary aggregates and real stock indexes. This process is to ensure that a meaningful condition of neutrality tests exists. Serletis and Koustas (1998), Koustas and Serletis (1999) and Puah *et al*. (2008) assert that the nonstationary in money supply and real variables is not sufficient for testing LRN. Monetary neutrality tests are inefficient in the presence of cointegration. If money series and other macroeconomics variables are cointegrated, then money does matter in the long-run. Table 2 reports the results of Johansen and Juselius (1990) maximum likelihood (ML) cointegration test. Empirical results show that the null hypothesis of no cointegration between M1 and real stock indexes series cannot be rejected at the 5 percent level, indicating that long-run relationship between M1 and real stock indexes does not exist. However, a common trend exists within the money supply and all the stock indexes when M2 is used. This means that the condition necessary for meaningful LRN tests only holds for the narrowly defined M1, while it is untrue for the broadly defined M2. In other words, the cointegration test results provide direct evidence that M2 do have the ability to influence real stock indexes in the long-run, therefore, it is not neutral with respect to the real stock indexes.

Table 2: Johansen-Juselius Cointegration Test Results

	LM1		LM2	
	r=0	r≤1	r=0	r≤1
LRCI	13.95	0.64	17.32**	0.72
LRFIN	12.56	2.67	14.61**	0.60
LRIND	13.59	0.20	16.80**	0.78
LRMIN	11.68	0.05	22.72**	0.73

Notes: Critical values are 14.26 and 3.84 for r=0 and r≤1, respectively. Lag selection is based on Schwert's (1987) formula, where $k = [4(T/100)^{1/4}]$. Refer to notes in Table 1 for other notations.

The unit root tests results robustly show that all series appear to be $I(1)$, subsequently, the long-run derivatives can be defined since there are permanent stochastic shocks in the money supply and real stock indexes. Nevertheless, the broader money supply is not informative to the LRN tests as it is cointegrated with the real stock indexes in the long-run. Thus, Equation (4) is only estimated for each of the four stock indexes with respect to M1. Following FS, the standard error of β_k has been calculated using the Newey and West (1987) procedure to correct for heteroskedasticity and autocorrelation. Estimated results of Equation (4) are then presented in tabulate form which consist of the values of estimated coefficients (β_k), Newey-West standard error (SE_k), t-statistic of null hypothesis (t_k) and the marginal significance level of null hypothesis (p-value). In addition to that, we also examine the impact of changes in stock indexes towards money supply M1 as stated in the first part of Equation (1) in order to study the reciprocal effect between money supply and stock indexes. The LRN tests results are reported in Tables 3(a) to 6(b).

Table 3(a): *Long-run Regressions of Real Composite Index on M1*

k	β_k	SE_k	t_k	p-value
1	1.170	0.693	1.688	0.094
2	1.346	0.763	1.764	0.080
3	1.491	0.791	1.885	0.062
4	1.582	0.800	1.977	0.050
5	1.637	0.798	2.052	0.042
6	1.673	0.790	2.118	0.036
7	1.698	0.778	2.181	0.031
8	1.715	0.764	2.244	0.027
9	1.728	0.749	2.307	0.023
10	1.738	0.733	2.370	0.019
11	1.745	0.717	2.433	0.017
12	1.749	0.701	2.495	0.014
13	1.752	0.686	2.555	0.012
14	1.752	0.670	2.614	0.010
15	1.751	0.656	2.671	0.009
16	1.749	0.642	2.726	0.008
17	1.746	0.628	2.780	0.006
18	1.742	0.615	2.831	0.006
19	1.737	0.603	2.880	0.005
20	1.730	0.591	2.926	0.004

Table 3(b): *Long-run Regressions of M1 on Real Composite Index*

k	β_k	SE_k	t_k	p-value
1	0.068	0.035	1.942	0.054
2	0.079	0.037	2.124	0.036
3	0.089	0.037	2.396	0.018
4	0.097	0.037	2.648	0.009
5	0.105	0.036	2.886	0.005
6	0.112	0.036	3.116	0.002
7	0.119	0.035	3.345	0.001
8	0.125	0.035	3.573	0.001
9	0.131	0.035	3.797	0.000
10	0.138	0.034	4.016	0.000
11	0.144	0.034	4.225	0.000
12	0.150	0.034	4.419	0.000
13	0.156	0.034	4.596	0.000
14	0.161	0.034	4.753	0.000
15	0.167	0.034	4.888	0.000
16	0.172	0.034	5.003	0.000
17	0.177	0.035	5.096	0.000
18	0.182	0.035	5.169	0.000
19	0.186	0.036	5.224	0.000
20	0.191	0.036	5.261	0.000

Table 4(a): *Long-run Regressions of Real Finance Index on M1*

k	β_k	SE_k	t_k	p-value
1	1.083	0.837	1.295	0.198
2	1.184	0.909	1.304	0.195
3	1.280	0.931	1.375	0.172
4	1.327	0.931	1.425	0.157
5	1.344	0.920	1.461	0.147
6	1.347	0.902	1.493	0.138
7	1.346	0.882	1.527	0.129
8	1.345	0.859	1.566	0.120
9	1.344	0.835	1.609	0.110
10	1.343	0.812	1.654	0.101
11	1.341	0.789	1.699	0.092
12	1.338	0.768	1.743	0.084
13	1.334	0.747	1.786	0.077
14	1.328	0.727	1.828	0.070
15	1.322	0.708	1.867	0.065
16	1.315	0.690	1.906	0.059
17	1.308	0.674	1.942	0.055
18	1.300	0.658	1.975	0.051
19	1.290	0.643	2.006	0.047
20	1.279	0.629	2.033	0.045

Table 4(b): *Long-run Regressions of M1 on Real Finance Index*

k	β_k	SE_k	t_k	p-value
1	0.051	0.039	1.308	0.194
2	0.056	0.043	1.296	0.198
3	0.062	0.046	1.362	0.176
4	0.067	0.047	1.415	0.160
5	0.071	0.049	1.459	0.147
6	0.076	0.050	1.501	0.136
7	0.080	0.052	1.546	0.125
8	0.084	0.053	1.596	0.113
9	0.089	0.054	1.649	0.102
10	0.094	0.055	1.703	0.091
11	0.099	0.056	1.757	0.082
12	0.104	0.057	1.809	0.073
13	0.108	0.058	1.859	0.066
14	0.112	0.059	1.906	0.059
15	0.116	0.060	1.950	0.054
16	0.120	0.060	1.992	0.049
17	0.125	0.061	2.031	0.045
18	0.128	0.062	2.067	0.041
19	0.132	0.063	2.099	0.038
20	0.136	0.064	2.125	0.036

	Table 5(a): *Long-run Regressions of Real Industrial Index on M1*					Table 5(b): *Long-run Regressions of M1 on Real Industrial Index*			
k	β_k	SE_k	t_k	p-value	k	β_k	SE_k	t_k	p-value
1	0.837	0.651	1.287	0.201	1	0.056	0.040	1.406	0.162
2	0.942	0.710	1.326	0.187	2	0.064	0.043	1.487	0.140
3	1.033	0.733	1.411	0.161	3	0.071	0.044	1.630	0.106
4	1.091	0.738	1.477	0.142	4	0.078	0.044	1.756	0.082
5	1.127	0.735	1.533	0.128	5	0.084	0.045	1.871	0.064
6	1.151	0.727	1.583	0.116	6	0.090	0.045	1.981	0.050
7	1.167	0.715	1.631	0.106	7	0.096	0.046	2.087	0.039
8	1.178	0.702	1.678	0.096	8	0.102	0.046	2.191	0.031
9	1.186	0.688	1.724	0.087	9	0.107	0.047	2.292	0.024
10	1.191	0.673	1.770	0.079	10	0.113	0.047	2.389	0.019
11	1.195	0.658	1.816	0.072	11	0.118	0.048	2.483	0.015
12	1.197	0.644	1.860	0.066	12	0.124	0.048	2.570	0.012
13	1.197	0.629	1.903	0.060	13	0.129	0.049	2.650	0.009
14	1.195	0.615	1.943	0.055	14	0.135	0.049	2.722	0.008
15	1.192	0.602	1.981	0.050	15	0.140	0.050	2.787	0.006
16	1.188	0.589	2.017	0.046	16	0.145	0.051	2.843	0.005
17	1.183	0.577	2.052	0.043	17	0.149	0.052	2.893	0.005
18	1.177	0.565	2.084	0.040	18	0.154	0.053	2.934	0.004
19	1.170	0.554	2.113	0.037	19	0.159	0.053	2.967	0.004
20	1.161	0.543	2.139	0.035	20	0.163	0.055	2.988	0.004

	Table 6(a): *Long-run Regressions of Real Mining Index on M1*					Table 6(b): *Long-run Regressions of M1 on Real Mining Index*			
k	β_k	SE_k	t_k	p-value	k	β_k	SE_k	t_k	p-value
1	0.305	1.035	0.295	0.769	1	0.008	0.027	0.296	0.768
2	0.303	1.132	0.268	0.789	2	0.008	0.031	0.267	0.790
3	0.327	1.173	0.279	0.781	3	0.009	0.033	0.278	0.782
4	0.326	1.184	0.275	0.784	4	0.010	0.036	0.274	0.785
5	0.313	1.179	0.265	0.791	5	0.010	0.038	0.264	0.792
6	0.298	1.164	0.256	0.798	6	0.010	0.039	0.255	0.799
7	0.286	1.142	0.250	0.803	7	0.010	0.041	0.250	0.803
8	0.276	1.116	0.247	0.805	8	0.011	0.043	0.247	0.806
9	0.266	1.087	0.244	0.807	9	0.011	0.044	0.244	0.808
10	0.256	1.058	0.242	0.810	10	0.011	0.045	0.241	0.810
11	0.245	1.028	0.238	0.812	11	0.011	0.046	0.238	0.813
12	0.234	0.999	0.234	0.816	12	0.011	0.047	0.233	0.816
13	0.222	0.970	0.229	0.819	13	0.011	0.048	0.229	0.820
14	0.211	0.942	0.224	0.824	14	0.011	0.049	0.223	0.824
15	0.198	0.915	0.217	0.829	15	0.011	0.050	0.216	0.829
16	0.185	0.889	0.208	0.836	16	0.010	0.051	0.207	0.836
17	0.170	0.864	0.197	0.844	17	0.010	0.051	0.196	0.845
18	0.154	0.840	0.183	0.855	18	0.009	0.052	0.182	0.856
19	0.136	0.817	0.166	0.868	19	0.009	0.053	0.165	0.869
20	0.116	0.795	0.145	0.885	20	0.008	0.053	0.145	0.885

In sum it is evident from the above results that LRN hypothesis only holds for M1 with respect to real Mining index. We cannot reject the null hypothesis of slope coefficient β_k equals zero at all k values for this sector [see Table 6(a)]. However, the estimated coefficients are positive and statistically significant from zero at 5 percent significance level at $k > 4$ for Composite index [see Table 3(a)], at $k > 18$ for Finance index [see Table 4(a)], and at $k > 15$ for Industrial index [see Table 5(a)]. This implies that permanent changes in M1 do have long-run positive effects on the level of these three real stock returns. On the other hand, similar results have been obtained when we tested the first part of Equation (1), in which we discover that except for real Mining index, all the indexes can significantly influence M1 in the long-run [see Tables 3(b), 4(b), 5(b) and 6(b)]. This indicates that the centre bank will increase the supply of money when the equity market is booming due to strong demand for liquidity in the market.

IV. CONCLUSION

The long-run neutrality (LRN) proposition is examined in this study to identify whether changes in money supply will have any long-run effect on stock market activities in Malaysia. The Fisher and Seater (1993) simple and non-structural reduced-form model is adopted to test the proposition that money supply changes do not have any long-run impact on real stock indexes. To examine the sensitivity of real stock returns with respect to different measurement of monetary aggregates, two different definitions of money supply have been used. Results from preliminary analysis show that all the series appears to be integrated of order one, indicating a direct evidence of LRN. However, a meaningful condition for the LRN test is only supported for M1 as the cointegration test results suggest that there is a long-run equilibrium relationship between the real stock indexes and M2. Since M2 is cointegrated with all the stock indexes under study, it means that M2 is not neutral with respect to real stock indexes in Malaysia[1].

The empirical results from FS test using M1 as the measure of money show that, generally, the monetary neutrality proposition is not supported in Malaysian stock market. This indicates that permanent stochastic changes in M1 do have positive impact towards real sectorial stock indexes in Malaysia, except for the Mining sector. On the other hand, with the exception of the real Mining index, all the real stock indexes are found to have positive long-run effect on the supply of M1, implying causal relationship exists between stock returns and money supply. All-in-all, our results suggest that the stock indexes are inefficient with respect to both M1 and M2. As such, the expansionary monetary policy might be considered as an effective policy instrument to stimulate the stock market performance. The reason behind is that changes in money supply can influence the liquidity position in the economy indirectly, and consequently affect the demand of stock in the market. Our finding is contrary to the modern Classical theory that asserts the policy ineffectiveness proposition, which states that systematic monetary policy, will be rationally anticipated and the anticipated changes in this policy will not affect output, unemployment, and other real variables in the economy. Another important implication on the fact finding of inefficient Malaysian stock market with respect to money supply is that agents might have the opportunity to gain excess profit from the stock market using the information on changes in the stock of money to predict the movements in stock prices.

REFERENCES

Alatiqi, S. and Fazel, S. (2008) "Can money supply predict stock prices?" *Journal for Economic Educators* **8(2)**, 54-59.

Bank Negara Malaysia. *Quarterly Statistical Bulletin*, various issues. Kuala Lumpur: Bank Negara Malaysia.

Boschen, J.F. and Otrok, C.M. (1994) "Long-run neutrality and superneutrality in an ARIMA framework: comment" *American Economic Review* **84**, 1470-1473.

Cooper, R. (1974) "Efficient capital markets and the quantity theory of money" *Journal of Finance* **19**, 887-908.

Davidson, L.S. and Froyen, R.T. (1982) "Monetary policy and stock returns: Are stock markets efficient?" *Federal Reserve Bank of St Louis* **64**, 3-13.

---

[1] Habibullah *et al.* (2002) and Puah and Habibullah (2004), on the other hand, found evidence that M2 is not neutral with respect to real GDP and agricultural sub-sectors in Malaysia.

Fisher, M.E. and Seater, J.J. (1993) "Long-run neutrality and superneutrality in an ARIMA framework" *American Economic Review* **83**, 402-415.

Fung, H.G. and Lie, C.J. (1990) "Stock market and economic activity: A causal analysis" in *Pacific-Basin Capital Markets Research* by S.L. Rhee and R.P. Chang, Eds., Amsterdam: North-Holland.

Gjerde, Ø. and Sættem, F. (1999) "Causal relations among stock returns and macroeconomic variables in a small, open economy" *Journal of International Financial Markets, Institutions and Money* **9**, 61-74.

Habibullah, M.S, Baharumshah, A.Z. and Tan, H.B. (1998) "Monetary policy, economic activity and the stock market: An empirical analysis of the Kuala Lumpur Stock Exchange" *Journal of Management* (*Jurnal Pengurusan*) **17**, 41-53.

Habibullah, M.S., Mohamed, A., Puah, C.H. and Baharumshah, A.Z. (2002) "The relevance of monetary aggregates for monetary policy purposes in Malaysia" *Borneo Review* **13(1)**, 1-12.

Jeng, C.C., Butler, J.S. and Liu, J.T. (1990) "The informational efficiency of the stock market: The international evidence of 1921-1930" *Economics Letters* **34(2)**, 157-162.

Johansen, S. and Juselius, K. (1990) "Maximum likelihood estimated and inference on cointegration with application to the demand for money" *Oxford Bulletin of Economics and Statistics* **52**, 169-210.

Kandir, S.Y. (2008) "Macroeconomic variables, firm characteristics and stock returns: Evidence from Turkey" *International Research Journal of Finance and Economics* **16**, 35-45.

Koustas, Z. and Serletis, A. (1999) "On the fisher effect" *Journal of Monetary Economics* **44**, 105-130.

Kwiatkowski, D., Phillips, P.C.B., Schmidt, P. and Shin, Y. (1992) "Testing the null hypothesis stationarity against the alternative of a unit root: How sure are we that economic time series have a unit root?" *Journal of Econometrics* **54**, 159-178.

Kwon, C.S. and Shin, T.S. (1999) "Cointegration and causality between macroeconomic variables and stock market returns" *Global Finance Journal* **10(1)**, 71-81.

Malliaropulos, D. (1995) "Testing long-run neutrality of money: Evidence from the UK" *Applied Economics Letters* **2**, 347-350.

McGee, R. and Stasiak, R. (1985) "Does anticipated monetary policy matter? Another look" *Journal of Money, Credit and Banking* **17**, 16-27.

Mookerjee, R. (1987) "Monetary policy and the information efficiency of the stock market: The evidence from many countries" *Applied Economics* **19**, 1521-1532.

Mookerjee, R. and Yu, Q. (1997) "Macroeconomic variables and stock prices in a small open economy: The case of Singapore" *Pacific-Basin Finance Journal* **5**, 377-388.

Newey, W.K. and West, K.D. (1987) "A simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix" *Econometric* **55**, 703-708.

Phillips, P.C.B. and Perron, P. (1988) "Testing for a unit root in time series regression" *Biometrika* **75(2)**, 335-346.

Puah, C.H. and Jayaraman, T.K. (2007) "Macroeconomic activities and stock prices in a South Pacific Island economy" *International Journal of Economics and Management* **1(2)**, 229-244.

Puah, C.H. and Habibullah, M.S. (2004) "Long-run neutrality of money and the agricultural sub-sectors in Malaysia: A Fisher-Seater analysis" *The Malaysian Journal of Agricultural Economics* **17**, 1-20.

Puah, C.H., Habibullah, M.S. and Lim, K.P. (2006) "Testing long-run neutrality of money: Evidence from Malaysian stock market" *The ICFAI Journal of Applied Economics* **5(4)**, 15-37.

Puah, C.H., Habibullah, M.S. and Abu Mansor, S. (2008) "On the long-run monetary neutrality: Evidence from the SEACEN countries" *Journal of Money, Investment and Banking* **2**, 50-62.

Said, S.E. and Dickey, D.A. (1984) "Testing for unit root in autoregressive-moving average of unknown order" *Biometrika* **71**, 599-607.

Schwert, G.W. (1987) "Effects of model specification tests for unit root in macroeconomic data" *Journal of Monetary Economics* **20**, 73-103.

Serletis, A. and Koustas, Z. (1998) "International evidence on the neutrality of money" *Journal of Money, Credit and Banking* **30**, 1-25.

Sertelis, A. (1993) "Money and stock prices in the United States" *Applied Financial Economics* **3**, 51-54.

Sprinkel, B.W. (1964) "*Money and Stock Prices*" Illinois: Richard D. Irwin.

Wongbangpo, P. and Sharma, S.C. (2002) "Stock market and macroeconomic fundamental dynamic interactions: ASEAN-5 countries" *Journal of Asian Economics* **13**, 27-51.

Yamak, R. and Kucukkale, Y. (2000) "Anticipated money growth and stock prices in Turkey" In *First International Joint Symposium on Business Administration*. Turkey: Gokceada-Canakkale.