MONEY, BANKING AND FINANCIAL MARKETS: A SURVEY OF PHILIPPINE RESEARCH

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I. Introduction

In the last three decades we have witnessed the tremendous growth of studies on banking and finance in the Philippine literature. An interesting feature of this literature is that its component studies employ and utilize varying techniques, approaches, and methodologies in trying to address their research objectives. Several studies provide contrasting empirical findings on a specific testable hypothesis at hand. In this paper, I review the Philippine literature on banking and finance, point out what methodology has been employed, what has been learned, what remains unsettled, and provide direction for future research. To my knowledge, no previous study has done similar survey research in banking and finance, and covering a broader scope as covered by this study. The “References” section provides an exhaustive list of the literature reviewed, but for space limitation, some of them are excluded in the discussion and in the summary tables (see Tables 1, 2, and 3).


In Section II of this paper, studies on money and banking are reviewed. For each study, the following information are indicated: author(s), year of study, time period of data used, type of data, functional form, and estimation technique. Section III surveys the studies on the financial markets. Section IV reviews the studies applying statistical and simulation models in banking and finance. Finally, Section V considers the implications for public policy of the theoretical and empirical findings.

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II. Studies on Money and Banking

2.1 The Effects of Monetary Policy

Sen (1966) estimates the relationship between economic growth and the price level in India, Ceylon, Philippines, Japan, and Pakistan from 1952 to 1962. He concludes that “there is considerable variety of experience among countries, and that the magnitudes of the coefficients are sensitive to the specification of the model. No single-variable approach to an explanation of the behavior of prices is sufficient” (page 351).

Fan (1970) makes a comparison of monetary instruments used by monetary authorities in Burma, Ceylon, India, Pakistan, Malaysia, Philippines, Thailand, Taiwan, South Korea, and Japan and concludes that the Bank of Japan uses the lending policy as its most potent policy instrument; reserve requirement ranks first in Korea, Taiwan, Philippines, and Thailand (discount rate ranks second); selective credit controls are used by Pakistan as the predominant instruments especially to promote exports and discourage imports, and open market operations are still at the embryonic stage and only Japan uses them to a limited extent.

Canlas (1986) investigates the output effects of some aspects of monetary policy in the Philippines. He argues that the existing political institutions render the fiscal authority dominant over the monetary authority and that his findings reveal that a growth of unanticipated money supply of 1 percent per year that persists for a period of 3 years would tend to raise output by about 0.44 percent.

Alburo and Canlas (1986) attempt to quantify the output effects of IMF’s financial programming arrangements with the Philippine government using a Lucas-Barro type of output equation. Their findings indicate that the impact of unanticipated money on output is –2.06 percent in 1984 and –5.27 percent in 1985.

Llanto (1990) forecasts money multipliers using the autoregressive integrated moving average (ARIMA) model and concludes that the results show a significance of over 90 percent and capture the underlying trends.

Reside and Basu (1996) examine the effect of monetary policy coordinated with fiscal policy on output growth and inflation using a monetary endogenous growth model with an explicit banking sector that intermediates capital. They conclude that differences in the degree of policy coordination account for cross-country differences in the persistence of inflation.

Habibullah (1999) investigates the long-run relationship between monetary aggregates and income in the area of financial innovations and deregulation in 10 Asian developing economies. The results show that money matters for monetary policy purposes in these countries. For the Philippines, M1 and M2 show long-run relationship with national income.

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1 IMF arrangements with client countries address balance of payments problems through elimination of exchange controls, the restoration of exchange rate stability, the reconciliation of internal and external policies, and liberalization of trade payments (Alburo and Canlas, 1986).

2 Indonesia, Malaysia, Myanmar, Nepal, Philippines, Singapore, South Korea, Taiwan, and Thailand.
Although some monetary aggregates and national income are cointegrated in Indonesia, Myanmar, Nepal, Philippines, Singapore, Sri Lanka, and Taiwan, these relationships are not stable in seven out of ten Asian countries studied, but this instability subsides towards 1994 (Habibullah, 1999).

Hsing (2004) attempts to determine how government deficit spending, stock market performance, currency depreciation or appreciation, expected inflation, and other related variables affect output. He finds that GDP in the Philippines is negatively influenced by the expected inflation rate and the U.S. federal funds rate, and positively affected by the government deficit-to-GDP ratio, domestic debt-to-GDP ratio, real peso depreciation, and stock market performance.

Dakila and Paraso (2005) focus on the interest rate channel of monetary policy. Their results confirm expectations that an increase in the 91-Day Treasury Bill rate generates a lagged reduction in the level of fixed capital formation and a decline in GDP growth four quarters after the interest rate shock.

Salas (2006) evaluates the Philippine central bank’s recent monetary policy stance before and after it adopted the inflation targeting framework. It estimates the correlation between output gap and overnight reverse repurchase agreement (RRP) at –0.2387, and between RRP and inflation at 0.5126. It finds that BSP has indeed been stabilizing inflation through its key policy rate, but it also appears to be accommodative with respect to the output gap.

Zakaria (2007) investigates the effectiveness of monetary policy in Indonesia, Malaysia, Philippines, and Thailand. It analyzes the impacts of interest rate shock on investment and consumption based on the magnitude and speed of adjustment. Its findings show that the effectiveness of monetary policy differs between countries and on the macroeconomic variables used in the analysis. Note that Habibullah (1999) has earlier found out similar results, that is, the evidence of long-run relationship between monetary aggregates and national income varies across countries. Zakaria (2007) also finds out that the impact of monetary policy on consumption is smallest in the Philippines and stronger in Thailand; and monetary policy was found more effective in influencing investment in the Philippines compared with Malaysia and Thailand.

Evangelista and Libre (2008) test the relevance of the electoral cycle hypothesis in the Philippines. Their results show weak support that electoral cycles affect aggregate economic outcomes, but for fiscal policy political cycles exist. Their results confirm the presence of political business cycles in total government expenditures and public construction spending. Moreover, they explain that monetary authorities show no inclination to engage in pre-electoral expansion on their own.

Baunto, et al. (2011) test the Friedmanite hypothesis on the link between the velocity of money demand and money growth. Their results provide strong support of the hypothesis on uncertainty in money supply and money demand, and that high variability of money growth is linked with a diminution in the income velocity of M1.
Synthesis

The early studies basically use annual data and employ the ordinary least squares (OLS) technique. Recent studies use quarterly data and employ more sophisticated time-series regression models. The empirical findings provide a common theme: the effectiveness of monetary policy varies across countries and on the macroeconomic variables used in the analysis. Future studies may explore lead-lag relationships as in Dakila and Paraso (2005) using quarterly or monthly data, if available.

2.2 On the Appropriate Monetary-Policy Variable

Fan and Liu (1970) estimate a money supply equation for ten Asian countries and the results show the importance of the Central Bank control of the reserve money in determining the money supply of these countries. Except for Japan which had a money multiplier of 3.543, low values of the money multiplier (ranging from 0.911 to 1.566) were estimated for nine other countries. The authors suggest that the monetary authority of each country should have a very good understanding of the relation between the money base and the money supply in its own country.

Lamberte (1984a) attempts to ascertain the relationship between various monetary aggregates and economic activity. The study generates evidence to indicate that broader monetary aggregates (M3, M3A, and M4A) predict future economic activity better than narrowly-defined monetary aggregates; “furthermore, M3A and M4A are found to have better forecasting capability than M3” (page 297). He concludes that “this underscores the importance of Central Bank utilizing much broader aggregates that include financial assets produced by nondeposit financial institutions in accurately describing economic activity” (page 297).

Lamberte (1984b) attempts to determine the extent to which the various monetary aggregates can be controlled by the Central Bank. This study shows that control over M1, M2, M3, and M1A is fairly adequate, but much broader aggregates (M2A, M3A, and M4A), which include a sizeable portion of deposit liabilities of nondeposit financial institutions, seriously undermine the effectiveness of monetary control. The study asserts that the monetary base moves with M1 more closely than with M2 and M3, and the variation of the monetary base accounts for about 72 percent of the variation of M1, but M3 appears to be more sensitive than M1 and M2 to changes in the monetary base.

Daquila (1987) focuses on the determinants of the demand for and supply of money and bank credit in the Philippines. He formulates a money and bank credit model, following the

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3 Japan, Formosa, Korea, India, Pakistan, Burma, Ceylon, Philippines, Thailand, and Malaysia.
4 Lamberte (1984a) defines M1 as the sum of currency in circulation and the demand deposits of commercial banks and rural banks; M2 equals M1 plus the savings and time deposits of commercial banks and rural banks; M3 equals M2 plus the deposit substitutes of commercial banks and thrift banks; M1A equals currency in circulation plus demand deposits of commercial banks, rural banks, and thrift banks; M2A equals M1A plus savings and time deposits of commercial banks, rural banks, and thrift banks; M3A equals M2A plus deposit substitutes of commercial banks and the nonbank financial intermediaries; and M4 equals M3A plus marginal deposits of commercial banks.
Brunner-Meltzer schema, and taking into account the major institutional features of the Philippine financial system.

The estimation results of Daquila (1987) confirm the relevance of the Brunner-Meltzer framework using Philippine data: most of the variations in the money supply and bank credit were attributable to changes in the monetary base, and in turn fluctuations in the monetary base have been brought about by changes in net foreign exchange reserves of the Central Bank. Thus, the study concludes that the monetary base provides a crucial role in the bank credit and money supply process in the Philippines.

Endriga (1993) examines the conditions under which either controlling the money stock or fixing the interest rate is more suitable for the Philippines in terms of higher and more stable output. His regression results show that a money target regime seems to be more appropriate as a result of the price effects and output effects of money-stock changes, and the non-significance of the interest rate coefficients in the output equations.

Gochoco (1993) examines the relationship between various monetary aggregates and real income, the 91-day Treasury bill rate, and the nominal exchange rate, and shows that M1 is the best choice for a target variable.

Gochoco (1994) investigates whether exogenous shocks and/or economic reform programs such as the financial reform program of the early 1980s resulted in changes in the dynamic equilibrium relationships among money, output, prices, and in some cases, interest rates. Her results show that when M1 is issued, the estimates for the post-shock period are quite different from those for the entire sample period. She concludes that using M1 is more reasonable than those obtained using total liquidity (TL).

Dakila (2001) conducts empirical simulations to ascertain the reasonableness of a theory modifying the currently popular nominal feedback rules for the conduct of monetary policy so that they react to the forecasted inflation rate, instead of to current or past actual inflation. His empirical simulations support the view that forward-looking nominal instrument rules provide better performance in terms of keeping inflation closer to the targeted level. He also asserts that simulations provide a measure of the optimal degree of activism for monetary policy and the optimal forecasting horizon.

Synthesis

Although most of the studies use quarterly data and the OLS method, they provide contrasting empirical findings. Lamberte (1984a, 1984b) stresses that M3, M3A, and M4A predict future economic activity better than M1 and M2, but the Central Bank has only adequate control of the latter. On the other hand, Gochoco (1993, 1994) consistently points to M1 as the best choice for a target variable. Habibullah (1999) provides support for M1 (and M2). Thus, the findings reveal that M1 seems to have a predictable relationship with economic activity and is controllable by the monetary authorities. Endriga (1993) also indicates that money-stock target policy is superior to interest-rate target policy, using M1 as the money-stock variable. The recent
stress on inflation targeting has relegated research on which is the most relevant monetary aggregate at the bottom of the priority issues.

2.3 Determinants of Inflation

Ross (1966) examines whether Philippine inflation is supply-driven or demand-driven. He concludes that the “structural” element of the recent Philippine inflation was extremely important, but the main disturbing feature was a change in demand, rather than in supply, conditions. Ross rules out the effect of money supply as well as that of food supply vis-à-vis population, on inflation. He states that preventing inflation may be seen as very largely a matter of securing adequate supplies of key foodstuffs for whatever general level of demand is expected.

Antonio (1974) evaluates the consumer price index (CPI) to see whether it “can be refined and made more reflective of the information it ought to record” (page 189). He argues that to evaluate the efficiency of the CPI as a measuring device, reference has to be made to the consistency of the information it reflects with what it ought to record. Furthermore, he argues that the new CPI series which employ the new base weights cannot be spliced with the old one since the two refer to two different groups of families. He concludes that flexibility in the treatment of dynamic items in the consumer basket is needed.

Bautista (1974) examines the relationship of inflation to the observed behaviour of certain policy variables. He analyzes Philippine data on average rates of change in the CPI, average monthly earnings of manufacturing workers, average labor productivity in manufacturing, and money supply during the 1955-1973 period, and shows that output per worker has been rising at rates much higher than the observed increases in nominal earnings of either salaried or wage employees in periods of relative price stability (1955-1960 and 1965-1969) as well as in periods of comparatively higher inflation rates (1960-1965 and 1969-1971). “There seems no evidence, therefore, that past wage increases could explain in a significant way the observed consumer price behavior in the Philippines. Similarly, there appears to be no definite relationship between changes in money supply and the CPI…” (page 221).

Valdepeñas (1974) attempts to determine how much of the inflation of the Philippines in the early 1970s can be reasonably attributed to the acceleration of oil prices at that time. He asserts that based on either CPI/WPI or input-output measure of inflation, there is no basis for the popular equation of inflation to the oil crisis in the Philippines.

Valdepeñas and See (1975) develop a regression model to address Bautista’s (1974) findings that money supply is not a contributing factor to Philippine inflation. Their findings indicate that inflation accelerated as monetary expansion persistently outpaced the growth in
output, money velocity rose and tended to accentuate inflation. They conclude that the growths in output and money stock are not simply proportional.

Akhtar (1976) provides an alternative formulation to test the relationship between inflation and openness in the context of time series data for six countries.\(^5\) He concludes that evidence from time-series data provides little or no support for the hypothesis that increases in the degree of openness reduce the rate of inflation. He also finds that the import-income ratio and inflation are positively related and appear to be highly significant in the case of the Philippines (or in India). Akhtar (1976) argues that the positive relation between import-income ratio and inflation is because the industrialization experience in the Philippines requires a substantial portion of imports; both import prices and import-income ratio showed strong rising trend during the 1953-1972 period, independent of changes in domestic prices. The author concludes that although the outward looking trade policy may increase the external component of capital accumulation “it may also increase price inflation, thereby discouraging capital formation” (page 648). He likewise suggests that the so-called outward looking trade policy is a mixed blessing.

Bautista (1982) attempts to relate observed movements in the effective exchange rates with foreign currencies to changes in the price level in a sample of 22 developing countries and stresses that the findings “indicate that changes in the effective exchange rate and excess domestic demand can explain to a very large extent inter-LDC differences in inflation rates for the period 1973-1979. The sensitivity of the domestic price level to exchange rate movements is seen not to differ significantly among countries adopting different methods of exchange rate adjustments...The observed robustness of the coefficient estimates for the effective exchange rate suggests the stability of the exchange rate-domestic price level relationship” (pages 37-38). The policy implication of these findings is simply that the policy of using exchange rate adjustment to improve international competitiveness is less attractive in the post-Bretton Woods period because achieving a given real devaluation “is now greater than what it used to be” [Bautista (1982), page 38].

Lim (1985) argues that the IMF has employed monetarist strategies to combat against inflation. Lim tests two important monetarist models (Harberger equation and Barro two-equation system) using Philippine data. “The results of the Harberger equations suggest that structuralist forces do influence prices as the standard Harberger equation improves with the (ad hoc) addition of structuralist variables. They also suggest that, for the Philippines, monetary variables affect prices with quite a substantial lag. It may take some time for prices to lower as an austere monetary policy will decrease aggregate demand slowly” (page 167).

Masih (1987) conducts empirical tests of Structuralist-Monetarist quarterly inflationary model for 5 Asian countries, after the 1974 oil price shocks and the change in the exchange rate system. His results indicate that monetary expansion seems to be significantly correlated with inflation in Korea, Philippines, Indonesia, Malaysia, and Thailand; he asserts that none of these countries’ wage rates have a significant effect on inflation rates, however, rise in oil prices and currency depreciation have significant effect on inflation rates. “The inflation rates of Korea, Philippines, and Thailand which are heavily dependent on imported oil got significantly affected by the rise in oil prices” (page 236).  

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\(^5\) Ceylon, Chile, Colombia, Philippines, South Africa, and Venezuela.
Tan (1990) conducts a comparative analysis of inflation in the Asian region (Hong Kong, Korea, Singapore, Taiwan, Thailand, Malaysia, Indonesia, Philippines, Bangladesh, India, Nepal, Pakistan, Sri Lanka, China, and Vietnam). She finds that the inflation rate “is generally low and double digit level occurred only intermittently due to external shocks and climactic change that adversely affected agricultural output. Monetary variables appear not to be a cause of the inflation spurs experienced” (page 107).

Reyes and Yap (1993) investigate the relationship between money and price level. The empirical estimates of Reyes and Yap (1993) show that there is no causality between money and prices in the Philippines during the 1981-1992 period.

Habibullah and Smith (1998) apply the P-Star approach in modeling inflation in the Philippines and its results indicate that broad money M2 provides an anchor for Philippine inflation during the 1981-1994 period.

Bagsic (2004) tests the Phillips curve model using Philippine data and obtains robust results to validate the inflation-unemployment trade off. From this relationship, the author estimates a non-accelerating inflation rate of unemployment (NAIRU) of 10 to 11 percent for the Philippines.

Furuoka (2008) analyzes the relationship between unemployment rate and inflation rate over the period 1980-2006. He indicates that there is a long-run cointegrating relationship (but no causality) between inflation and unemployment in the Philippines.

Santos, Mapa, and Glindro (2010) employ the peaks-over-threshold (POT) model in estimating inflation-at-risk (IaR) and suggest that the inflation rate experienced in 2008 cannot be considered as an extreme value, although it was very near the 90% IaR.

Dela Cruz and Dickenson (2011) examine the role of inflation risk in the determination of interest rate movements. Their results show that inflation covariance risk significantly influences interest rate process.

**Synthesis**

The studies (both empirical and descriptive) provide mixed results. Bautista (1974), Tan (1990), and Reyes and Yap (1993) find that there is no relationship between money and prices in the Philippines. On the contrary, Lim (1985), Masih (1987), and Habibullah (1998) provide reverse findings. However, most of the studies conclude that inflation in the Philippines is demand-driven. Future studies may want to test previous hypotheses using the new time-series techniques available.

2.4 Savings and the Banking System

Hooley (1962) analyses some changes of the structure of savings in the Philippines in the 1950s. The major finding of this study is that the most important change occurring over the past
decade concerns changes in the composition of saving, a shift from tangible to financial forms made possible by a rapid expansion of the banking system.

Williamson (1969) attempts to supply additional explanation for the impressive increase in Asian savings rates. He confirms the hypothesis that low rates of savings may not be simply the cause of low rates of income growth, but also the effect of low rates of growth in Asia (Japan, Taiwan, Burma, South Korea and Philippines).

Atta (1971) investigates the possible economic consequences of usury legislation, most particularly on the operations of commercial banks. She presents evidence that personal savings in the Philippines rose in absolute terms and as a percentage of personal income (from 5% in 1950-1953 to 13% in 1964-1967); that the rise in personal income is the statistically significant variable explaining the rise in personal savings; and that there is no conclusive evidence to show that the usury legislation was operative prior to 1967. Furthermore, she observes that savings deposits as a percent of GNP rose from 5% in 1950-1953 to 16% in 1964-1967, and this rapid growth was statistically attributed to the rise in personal income and the rise in nominal interest rates.

Burkner (1980) analyzes savings deposits in the Philippines from 1950 to 1977. He attributes the following factors as significantly responsible for the increase in savings in the Philippines during the postwar period, and in particular, during the 1970s: the improvement in the standard of living, the expansion of branch network of financial institutions, and the increase in the interest rates.

Naya (1984) attempts to assess the magnitude of the external shocks in terms of their adverse impact on the balance of payments of 12 Asian developing countries, and to examine the policy responses to these shocks. He suggests that the long-term improvement in the debt-servicing capacity and renewed economic growth commensurate with the resources and abilities of each Asian developing country can only proceed if full mobilization of long term structural changes that increase exports, increase domestic savings, and raise the efficiency of investment is carried out.

Sicat (1984b) examines some factors believed to be responsible for differences in regional saving patterns. He provides evidence to show that real saving levels have been growing only marginally, and accompanied by a slight decline in saving mediation by banks. This study likewise shows that saving behavior between households differed among regions as well as between years.

Blanco and Meyer (1989) document and describe rural deposit mobilization in the Philippines amidst government attempts to reduce the urban bias of financial development. They argue that there is a large potential financial market to be tapped in rural areas due to its large share of population and GDP; in fact, they point out that the rural deposit to GDP ratio continued to increase in the 1980s despite a decline in rural banking offices and in per capita GDP.

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6 China, Hong Kong, South Korea, Singapore, Indonesia, Malaysia, Philippines, Thailand, Burma, India, Pakistan, and Sri Lanka.
Bautista and Lamberte (1990) investigate the comparative saving behavior of rural and urban households in the Philippines using the 1985 Family Income and Expenditures Survey (FIES) data. They estimate marginal saving rates for Philippine households, distinguishing between rural and urban households by region, and by income group. They conclude that at a given income level, rural households generally save more than urban households, both on average and at the margin.

Orbeta (2005) estimates a savings function using cross-section household data from the 2002 Annual Poverty Indicator Survey and employs two-stage probit and full information maximum likelihood estimation techniques, respectively, in his regression equations. The study’s empirical estimates show the negative impact of children on household savings.

Lastly, Alba and See (2006) investigate whether or not the saving behavior of Filipino households fits the life-cycle hypothesis. Using pseudo-panels constructed from 1988-2000 Family Income and Expenditures Survey (FIES), they show that consumption rises with the age of the household head and that the consumption profile has been rising for younger cohorts. Their regression estimates reveal that the cohort profile of consumption has been rising faster than that of income; their regressions also indicate that Filipino households do not behave as the life-cycle hypothesis predicts. It would be interesting to see how taxation of deposit and investment earnings affects savings rate in the recent period.

Synthesis

There is near consensus among the studies that income, interest rate, and the expansion of banking offices are positively related to savings, but there exist rural-urban and regional differences in the propensity to save. The findings of Alba and See (2006) that Filipino households do not behave as the life-cycle hypothesis predicts are consistent with the findings of Mikesell and Zinser (1973) that long-run planning horizon models (e.g. life-cycle hypothesis) “may not be applicable in developing countries where households, small businesses, and small farmers may be subject to severe fluctuations in income, family size, or weather,” (page 19). Mikesell and Zinser (1973) review studies on saving function in developing countries and conclude that “most studies show that the average saving rate tends to be proportional to per capita income under conditions of steady growth but that the saving rate is positively associated with the rate of growth of GNP” (page 19). The findings of most of the studies reviewed in this section are consistent with the pattern observed by Mikesell and Zinser (1973).

2.5 Studies Related to the Exchange Rate

Legarda (1962) describes the foreign exchange decontrol policy and suggests that with decontrol, income streams will probably be redirected from the new industrial entrepreneurs and back to the primary product exporters.

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7 The theory that people try to stabilize their consumption over their entire lifetime. This hypothesis predicts that young and old households will consume in excess of their income and that those in the middle-aged groups will save to support themselves during their retirement (Gordon, 1990).
Eapen (1967) employs the “income-absorption” analysis to evaluate how devaluation of the peso would have affected the trade balance and the balance of payments position of the Philippines. He concludes that the peso devaluation, by itself, would not have succeeded in bringing about the reduction in absorption which was a prerequisite to an improvement in the economy’s balance of trade.

Jurado (1972) attempts to estimate the production cost of exchange control in the Philippines in 1961. His estimates range from 0.18 percent to 1.65 percent of GNP and he views this cost as national output foregone due to peso overvaluation.

Alburo and Glahe (1976) evaluate some aspects of exchange rate policies commonly adopted by many developing countries and argue that “there is no apparent difference in the capital movements between the period when tight controls and exchange restrictions prevail and when the exchange rate is floated, the official rate maintained, and controls gradually lifted with some transactions being required to be conducted at the official rates” (pages 538-539). The effect of varying exchange regimes on capital flows is important to the balance of payments and to the exchange rates, as illustrated by the Philippine experience. The following factors add more financing burden on the balance of payments: (1) there is a smaller amount of stabilizing flows with an unrealistic par value, (2) this type of regime fosters a thriving black market for foreign exchange, and (3) increasing black market rates induce large volumes of capital flight. They stress the need for a realistic exchange rate (Alburo and Glahe, 1976).

Bird (1979) examines the economic rationale of the decisions that have been made by developing countries relating to exchange rate policy and provides an analysis that when exchange-rate policy is used, an improvement in the balance of payments has normally been achieved.

Bautista (1981) provides an exploratory survey of policy issues and recent empirical work related to the implications of generalized currency floating for the LDCs. He argues that the adoption of generalized currency floating by developed countries increased the complexity of economic policymaking in developing countries, but it also presented an opportunity for LDC policymakers to actively use exchange rate policy in promoting external balance and other policy objectives.

Yang (1981) briefly analyzes the foreign exchange problem of the Philippines in the mid-1950s and concludes that the decision to rely on exchange control for defending the balance of payments in 1956 had unnecessarily and unrealistically delayed the much needed exchange rate adjustments.

Pante (1982) attempts to evaluate the exchange rate experience of the Philippines during the period of generalized floating of major currencies. He explains that the exchange rate regime during the post-1970 period was characterized by limited rather than full flexibility (the currency can be more appropriately described as “crawling” rather than “floating” vis-à-vis the U.S. dollar) and this system helped the Philippines in weathering the external shocks after the 1973-1974 oil embargo.
Bautista (1985) examines the influence of the foreign trade regime on the agricultural sector in a developing country, focusing on the postwar experience of the Philippines. He concludes that the postwar trade and exchange rate policies discriminated persistently against agricultural export production, and this non-neutral incentive structure presumably contributed to a relatively inferior economic performance throughout most of the postwar period.

Llanto (1987b) focuses on the Philippine experience with pegging the exchange rate and the eventual collapse of the fixed exchange rate system. His empirical results show a significant relationship between exchange rate depreciation and speculative activity, as well as a significant relationship between domestic credit expansion and the probability of a devaluation.

Llanto (1988) discusses the link between the exchange rate and fiscal deficit. His analysis is that uns sustainable fiscal deficit imposes severe pressure on the current account and the stock of international reserves via excess demand for foreign assets and makes the management of a float more difficult.

Medalla (1991) discusses a static model which allows the government to set independent exchange rate and interest rate targets in the short (and medium) run. He analyzes that “the Philippine government, during and after Marcos, has tried to defend an exchange rate regime that is not consistent with external shocks and the creation of domestic credit. This has resulted in chronic and growing external imbalance” (page 61).

Majuca (1992) analyzes the Philippine balance of payments using an approach that attributes a central role to monetary variables. His results confirm his model’s prediction: domestic credit expansion stimulated speculative attacks against the peso leading to the eventual depletion of the Central Bank’s stocks of foreign reserves. His other findings are: demand for money was insensitive to the discount rate, and changes in the interest rate did not affect the balance of payments.

Yap (2001) examines whether dollarization is relevant in the Philippine economy, and arrives at a conclusion that dollarization is not a viable option because the Philippines is not a heavily dollarized economy.

Fouladi (2012) examines twenty-two foreign currencies vis-à-vis the Philippine peso for evidence of long-term dependence. He employs three different methods: (1) the classical rescaled range, (2) the modified rescaled range, and (3) the rescaled variance statistic. He conducts statistical tests using the ARFIMA (autoregressive fractionally integrated moving average) technique on its 20-year daily closing prices. The empirical results show that when using modified rescaled range and the rescaled variance methods, there seems to be no significant long-range dependence in all examined currencies; however, when using the classical rescaled range, significant long-range dependence in many currencies is detected.

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8 A unit increase in the growth of credit increases the probability of devaluation by a magnitude of 0.069, and an increase in the stock of reserves relative to credit decreases the probability of devaluation by more than 20% (Majuca, 1992).
Synthesis

Most of the studies agree that active use of exchange rate policies can promote external balance (Bird, 1979; Bautista, 1981; and Pante, 1982). Related studies (Llanto, 1987b and Majuca, 1992) argue that domestic credit expansion and the probability of devaluation are significantly related. More studies may be conducted to examine what is the relationship between policies to stabilize the exchange rate with policies to control the money supply.

2.6 Studies on Banking Efficiency

Tolentino (1986) explores the issue of a useful definition of scale economies, and using the definition to formulate a measure of scale economies (diseconomies) among categories of financial firms in the Philippines. His estimates show that the production function for all banks was characterized by decreasing returns to scale, the production functions for small-and-medium sized banks were characterized by increasing returns to scale, and the production functions for large banks were characterized by decreasing returns to scale.

Relampagos and Lamberte (1989) look at the fund transfer operations of bank branches and show that the funds transfer operations of commercial banks and private development banks allow them to efficiently allocate resources from surplus to deficit branches. The policy response of the government requires banks to allocate 10 percent of their net loanable funds to agrarian reform beneficiaries and 15 percent to agricultural lending; and to invest 75 percent of their total deposits in the same service area. The authors consider these policies not conducive to developing a truly viable rural financial institutions.

Patalinghug (1990) attempts to substantiate the hypothesis that market share and profitability are positively correlated. An examination of data from the Philippine commercial banking industry confirms the positive link between market share and profitability.

Abiad (1991) looks at borrower transaction costs in rural financial markets and its role in the rationing of credit in the Philippines. She arrives at three conclusions: (1) transaction costs play an important role in the demand for credit and in the rationing of credit among borrower classes, (2) the lifting of the interest rate restrictions decreased the absolute level of transaction costs in the deregulated period compared to the regulated period, and (3) transaction costs have a regressive impact on borrowers.

Dacanay (2003) estimates the banks’ profit function that considers both market share and concentration measure. The study provides evidence that market share positively influences banks’ profitability [confirming the findings made earlier by Patalinghug (1990)] while industry concentration is not significant in determining the banks’ profit function. In addition, the study finds that banks engaging in universal banking activities (as opposed to plain commercial banking functions) have scope economies.

Manuela (2004) investigates the excess returns around the merger date using data on Philippine banks involved in mergers and acquisitions for the period 1999-2002. The results indicate that the impact of a shock on daily excess returns is temporary, while its impact on the
cumulative excess returns is permanent. The latter indicates “that the free-rider problem can occur and that investors with information tend to profit from cumulative excess returns” (page 55).

Dacanay (2007a) examines the profit and cost efficiency of Philippine commercial banks from 1992 to 2004, and the “results indicate that profit efficiency slowly decreased from a mean score of 92% in 1992 to 84% in 2004 while cost efficiency hovers around 11% to 12% from 1992 to 1998, and then jumps to 14% to 15% from 1998 to 2004” (page 1). In addition, profit efficiency scores show that universal banks are more efficient than commercial banks suggesting scope economies for engaging in expanded and equity investment activities.

Dacanay (2007b) examines the Malmquist index and technical efficiency scores of Philippine commercial banks following the Asian financial crisis in 1997 employing data envelopment analysis (DEA) approach. Using a balanced panel of 35 banks, the study estimates time-varying Malmquist index that shows that, on average, banks improved their productivity by 4.6% annually from 1998 to 2005; DEA results on technical efficiency likewise show that majority of banks exhibit decreasing returns to scale, but universal banks are more technically efficient than commercial banks, providing evidence for scope economies.

Los Baños (2007) investigates whether the resource allocation efficiency of Philippine rural banks resulting from the quantity and quality of banking intermediation activities affects regional economic growth. Using panel data for the period 1993 to 2005 from 16 regions of the Philippines and employing the pooled estimated generalized least squares (EGLS) method, she finds that Philippine rural banks need to make allocative adjustments in the areas of branch presence, operational efficiency, and credit participation.

Dacanay (2010) analyzes the evolution of cost and profit efficiency of Philippine commercial banks during the period 1992 to 2004. He observes that cost inefficiency increased after liberalization in 1994 and further shot up after the Asian financial crisis in 1997; on the other hand, profit efficiency steadily declined from above 90% prior to liberalization to 84% in 2004.

Barry, et al. (2011) investigate the implications of the bank restructuring program implemented after the 1997 Asian financial crisis in six countries: Hong Kong, South Korea, Indonesia, Malaysia, Philippines, and Thailand. Using the same methods used by Dacanay (2007a), they find that efficiency scores are relatively high for South Korea and relatively low for the Philippines; and in investigating the link between ownership structure and efficiency, they find that efficiency scores are higher for banks which are held by minority private shareholders and banks that are foreign-owned.

Gordo (2013) uses data envelopment analysis (DEA) and bank groups as decision-making units to evaluate the performance of Philippine banks. He reports a generally declining trend in technical efficiency and his results did not support the hypothesis that, on average, bigger banks are more efficient than smaller banks.
Synthesis

The studies above provide contrasting empirical estimates. For instance, Dacanay (2003), Dacanay (2007a) and Dacanay (2007b) find out that universal banks are more efficient than plain commercial banks. Dacanay (2010), Manlagnit (2011) and Barry, et al. (2011) discover substantial inefficiencies among domestic banks. And Tolentino (1986) and Gordo (2013) indicate that the evidence does not support the hypothesis that bigger banks are more efficient than smaller banks. Future studies need to look at the relationship between market structure and performance given varying regulatory capital framework (e.g. Basel I, Basel II, and Basel III).

2.7 Accounting Analysis of Bank Statements

Laya (1992) applies the breakeven method in estimating lending-borrowing spread using hypothetical data. He analyzes that breakeven spread is a mere 0.79 percent if the Central Bank requires non-interest bearing reserves of 5 percent and if gross receipts tax (GRT) and agri/agra lending requirement are both eliminated.

Cayanan (2004) assesses the financial reporting practices of 16 listed Philippine banks in 2003 as regards their compliance with the financial reporting requirements embodied in Securities Regulation Code Rules 68 and 68.1 and the Statements of Financial Accounting Standards (SFAS). His findings show that comparing this study with Cayanan (2003) based on 2001 and 2002 data of 16 banks, there is an improvement in the reporting of provision for bad debts. However, he asserts that the financial reporting practices of the banks still leave much to be desired as some banks have questionable accounting policies that result in higher reported income. He suggests to require banks to disclose the amount of secured and non-secured non-performing loans (NPLs).

Echanis (2004) discusses revenue recognition practices for the period 2001-2003 in the Philippine credit card sector and the impact of these practices on the quality of earnings and receivables reported in the financial statements of credit card companies. She concludes that “the extent of catch-up provisioning required of credit card companies as a consequence of BSP Memorandum No. 398 appears to indicate that the industry had significantly inadequate provisions for doubtful accounts in the years prior to 2003. This implies overstatement of receivables and revenues in those years. ...Disclosures of credit card companies regarding their most material asset, receivables, are inadequate. No breakdown of the receivables as to age and source is provided by any company surveyed in this paper” (page 21). This information is now required by IAS 32 to be provided by all Philippine companies.

Cayanan (2007) assesses the financial reporting practices of listed companies comprising of 17 banks and 62 holding companies for the period 2002-2003. The regression results show that regulated companies have less inclination not to comply with financial reporting rules. It also indicates that the higher the debt ratio, the more likely a company will not comply with financial reporting rules; that some of the reporting violations in banks may be due to Bangko Sentral ng Pilipinas (BSP) allowing certain financial reporting practices (e.g. direct charging of provision for bad debts against surplus and staggered recognition of provisioning for bad debts
Cayanan (2009) assesses the annual reports of 8 banks in terms of their compliance with Philippine GAAP in 2008, three years after the Philippines fully adopted the international accounting and financial reporting standards. He focuses his assessment of the financial reports on loan portfolio, other financial assets, and financial liabilities which represent the biggest accounts in the balance sheet of a bank. He reports that in 2008, the financial statements of the 8 banks examined in this study adequately addressed (1) the presentation of accounts expected to be collected or due within a year, and (2) the disclosure of breakdown of loan portfolio and the non-performing loans (NPLs). However, he stresses that there are still areas for improvement such as the inadequate disclosures on segment information which is useful in assessing the sensitivity of a bank’s operating performance given changing macroeconomic conditions, the nonconsolidation of subsidiaries and special purpose vehicles (SPVs), and the staggered recognition of losses.

Distinguin, et al. (2011) investigate whether equity market information could add to accounting information in the prediction of bank financial distress in Asia. Their results “show that the use of equity market indicators can improve the prediction model as they bring additional information not already contained in accounting indicators” (page 16), and this contribution holds whatever the importance of the ratio of market-funded liabilities to total assets.

Cayanan (2012) compares the financial reporting practices of 17 listed Philippine banks and 2 Philippine government banks in terms of their compliance with the Philippine GAAP. He reports that the financial reporting practices of listed banks are no better than those of the government banks. Some of the financial reporting violations still observed in both private and government banks are related to lack or insufficient disclosures that make the financial reports less informative, the low quality of external audit (banks were given “unqualified” opinions despite some observations of financial reporting violations), and violations which resulted in the overstatement of assets and net income. [Cayanan (2012), page 73].

Wong (2012) compares the board governance practices of the top five (5) Philippine banks with five (5) randomly selected Hong Kong banks based on the Walker Review recommendations on the governance of banks and financial institutions in the United Kingdom. She identifies the following gaps in the best practices of Hong Kong and Philippines: (1) the required minimum number of independent directors, (2) the screening of non-executive directors, (3) concurrent directorships, (4) roles and responsibilities of the chair and the board, (5) responsibility for preparing the financial statement, (6) mandatory governance disclosures specified in the Philippine Code of Corporate Governance, (7) disclosure of induction and development programs for directors, and (8) formal and rigorous annual evaluation of board performance and that of its committees and individual directors.

9 However, Cayanan (2012) reveals improvements in the following financial reporting practices of listed banks since the implementation of the international accounting standards: (1) banks’ disclosures regarding their liquidity position through information regarding the maturity profile of assets and liabilities, (2) disclosures on non-performing loans, and (3) disclosures related to credit risk, liquidity risk, and market risk.
Synthesis

The consensus among the findings of the financial reporting studies is that bank financial reporting has improved, especially after the Philippines adopted the IAS in 2005. However, there is still room for improvement in terms of adequacy of disclosures, quality of audit, and violations that resulted in the overstatement of assets and net income. However, the studies reviewed here use a small sample of banks. Larger-sample studies in the post-2005 period are suggested to be pursued.
### Table 1

#### Studies on Money and Banking

A. The Effects of Monetary Policy

<table>
<thead>
<tr>
<th>Study</th>
<th>Time Period</th>
<th>Type of Data</th>
<th>Functional Form</th>
<th>Estimation Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sen (1966)</td>
<td>1952-1962</td>
<td>Annual</td>
<td>Linear</td>
<td>OLS</td>
</tr>
<tr>
<td>Reside and Basu (1996)</td>
<td>N. A.</td>
<td>N. A.</td>
<td>Non-linear</td>
<td>Growth Model</td>
</tr>
<tr>
<td>Dakila and Paraso (2005)</td>
<td>1st Qtr 1984-1st Qtr 2003</td>
<td>Quarterly</td>
<td>Linear</td>
<td>OLS/VECM</td>
</tr>
<tr>
<td>Evangelista and Libre (2008)</td>
<td>2nd Qtr 1986-1st Qtr 2007</td>
<td>Quarterly</td>
<td>Linear</td>
<td>OLS/ARIMA</td>
</tr>
<tr>
<td>Baunto, et al. (2011)</td>
<td>2nd Qtr 1982-4th Qtr 2006</td>
<td>Quarterly</td>
<td>Linear</td>
<td>Bai-Perron Model/GARCH Model</td>
</tr>
</tbody>
</table>
## B. On the Appropriate Monetary Policy Variable

<table>
<thead>
<tr>
<th>Study</th>
<th>Time Period</th>
<th>Type of Data</th>
<th>Functional Form</th>
<th>Estimation Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fan and Liu (1970)</td>
<td>1\textsuperscript{st} Qtr 1960-2\textsuperscript{nd} Qtr 1968</td>
<td>Quarterly</td>
<td>Linear</td>
<td>OLS</td>
</tr>
<tr>
<td>Lamberte (1984a)</td>
<td>2\textsuperscript{nd} Sem 1967-2\textsuperscript{nd} Sem 1980</td>
<td>Semestral</td>
<td>Linear</td>
<td>OLS</td>
</tr>
<tr>
<td>Lamberte (1984b)</td>
<td>2\textsuperscript{nd} Qtr 1969-4\textsuperscript{th} Qtr 1980</td>
<td>Quarterly</td>
<td>Log-linear</td>
<td>OLS</td>
</tr>
<tr>
<td>Daquila (1987)</td>
<td>1\textsuperscript{st} Qtr 1970-4\textsuperscript{th} Qtr 1980</td>
<td>Quarterly</td>
<td>Non-linear</td>
<td>2SLS</td>
</tr>
<tr>
<td>Gochoco (1993)</td>
<td>1\textsuperscript{st} Qtr 1982-2\textsuperscript{nd} Qtr 1991</td>
<td>Quarterly</td>
<td>Linear</td>
<td>OLS/ Cointegration Analysis</td>
</tr>
<tr>
<td>Gochoco (1994)</td>
<td>1\textsuperscript{st} Qtr 1981-4\textsuperscript{th} Qtr 1992</td>
<td>Quarterly</td>
<td>Linear</td>
<td>Cointegration Analysis</td>
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C. Determinants of Inflation

<table>
<thead>
<tr>
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<th>Time Period</th>
<th>Type of Data</th>
<th>Functional Form</th>
<th>Estimation Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ross (1966)</td>
<td>June 1950-June 1965</td>
<td>Monthly</td>
<td>Linear</td>
<td>OLS</td>
</tr>
<tr>
<td>Antonio (1974)</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
<td>Descriptive Analysis</td>
</tr>
<tr>
<td>Valdepeñas and See (1975)</td>
<td>1950-1974</td>
<td>Annual</td>
<td>Linear</td>
<td>OLS</td>
</tr>
<tr>
<td>Akhtar (1976)</td>
<td>1953-1970</td>
<td>Annual</td>
<td>Linear</td>
<td>OLS</td>
</tr>
<tr>
<td>Masih (1987)</td>
<td>1st Qtr 1974-4th Qtr 1984</td>
<td>Quarterly</td>
<td>Linear</td>
<td>OLS</td>
</tr>
<tr>
<td>Dela Cruz and Dickenson (2011)</td>
<td>1986-2005</td>
<td>Quarterly</td>
<td>Log-linear</td>
<td>GARCH</td>
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### D. Savings and the Banking System

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<th>Study</th>
<th>Time Period</th>
<th>Type of Data</th>
<th>Functional Form</th>
<th>Estimation Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hooley (1962)</td>
<td>1951-1960</td>
<td>Annual</td>
<td>Ratios/Graphs</td>
<td>Descriptive Analysis</td>
</tr>
<tr>
<td>Williamson (1969)</td>
<td>1950-1964</td>
<td>Annual</td>
<td>Linear</td>
<td>OLS</td>
</tr>
<tr>
<td>Atta (1971)</td>
<td>1947-1967</td>
<td>Annual</td>
<td>Linear</td>
<td>OLS</td>
</tr>
<tr>
<td>Sicat (1984b)</td>
<td>1961-1971</td>
<td>Annual</td>
<td>Linear</td>
<td>OLS</td>
</tr>
<tr>
<td>Bautista and Lamberte (1990)</td>
<td>1985</td>
<td>Cross-section of households</td>
<td>Linear</td>
<td>TS Probit, FIML</td>
</tr>
<tr>
<td>Orbeta (2005)</td>
<td>2002</td>
<td>Cross-section of households</td>
<td>Linear</td>
<td>TS Probit, FIML</td>
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### E. Studies Related to the Exchange Rate

<table>
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<th>Study</th>
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<th>Functional Form</th>
<th>Estimation Technique</th>
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<tr>
<td>Legarda (1962)</td>
<td>1962</td>
<td>N. A.</td>
<td>N. A.</td>
<td>Descriptive Analysis</td>
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<tr>
<td>Eapen (1967)</td>
<td>1950-1960</td>
<td>Annual</td>
<td>Ratios</td>
<td>Descriptive Analysis</td>
</tr>
<tr>
<td>Jurado (1972)</td>
<td>1961</td>
<td>Cross-section of 29 industries</td>
<td>Linear</td>
<td>Linear Programming</td>
</tr>
<tr>
<td>Alburo and Glahe (1976)</td>
<td>1958-1973</td>
<td>Annual</td>
<td>Linear</td>
<td>OLS</td>
</tr>
<tr>
<td>Bird (1979)</td>
<td>1973-1976</td>
<td>Annual</td>
<td>N. A.</td>
<td>Descriptive Analysis</td>
</tr>
<tr>
<td>Bautista (1985)</td>
<td>1949-1976</td>
<td>Annual</td>
<td>Log-linear</td>
<td>OLS</td>
</tr>
<tr>
<td>Llanto (1987b)</td>
<td>1972-1983</td>
<td>Quarterly</td>
<td>Linear</td>
<td>OLS</td>
</tr>
<tr>
<td>Yap (2001)</td>
<td>1st Qtr 1986-2nd Qtr 2000</td>
<td>Quarterly</td>
<td>Linear</td>
<td>OLS</td>
</tr>
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</table>
F. Studies on Banking Efficiency

<table>
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<tr>
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<th>Time Period</th>
<th>Type of Data</th>
<th>Functional Form</th>
<th>Estimation Technique</th>
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<tbody>
<tr>
<td>Relampagos and Lamberte (1989)</td>
<td>1987</td>
<td>Cross-section of banks</td>
<td>Linear</td>
<td>OLS</td>
</tr>
<tr>
<td>Dacanay (2007b)</td>
<td>1998-2005</td>
<td>Annual</td>
<td>Linear</td>
<td>Data Envelopment Analysis</td>
</tr>
<tr>
<td>Los Baños (2007)</td>
<td>1993-2005</td>
<td>Annual</td>
<td>Linear</td>
<td>Panel Data Regression (EGLS)</td>
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<td>Manlagnit (2011)</td>
<td>1990-2006</td>
<td>Annual</td>
<td>Log-linear</td>
<td>Stochastic Frontier Analysis</td>
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<tr>
<td>Gordo (2013)</td>
<td>1999-2009</td>
<td>Annual</td>
<td>Linear</td>
<td>Data Envelopment Analysis</td>
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### G. Accounting Analysis of Bank Statements

<table>
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<th>Study</th>
<th>Time Period</th>
<th>Type of Data</th>
<th>Functional Form</th>
<th>Estimation Technique</th>
</tr>
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<tbody>
<tr>
<td>Laya (1992)</td>
<td>Hypothetical Data</td>
<td>Annual</td>
<td>Lending-Borrowing Spread</td>
<td>Breakeven Analysis</td>
</tr>
<tr>
<td>Cayanan (2009)</td>
<td>2008</td>
<td>Cross-section of 8 banks</td>
<td>N. A.</td>
<td>Descriptive Analysis</td>
</tr>
<tr>
<td>Wong (2012)</td>
<td>2009</td>
<td>Comparison of RP5 vs. HK5 (10 banks)</td>
<td>N. A.</td>
<td>Descriptive Analysis</td>
</tr>
</tbody>
</table>
III. Studies on Financial Markets

3.1 On the Predictability of Stock Prices

Gregorio and Saldaña (1990) investigate whether the market corresponds to a “fair game” or efficient market. Their results suggest that prices in the Philippine Stock Exchange do not follow a pattern and it is not profitable to use the moving average of daily closing prices to beat the market. The authors recommend to ignore suggestions by technical analysts based on price charts.

Saldaña and Victoria (1990) explore the use of corporate income and past prices as bases for predicting stock prices and leading to well-informed investment decisions. Their empirical estimates show a significant relationship between reported earnings and stock price of SMC. Their forecasting model also indicates that only the most immediate past value of SMC share price is useful in predicting the present share price.

Salita (1992) examines stock dividend declarations and their impact on stock prices on and around the ex-dates for six Philippine companies (PNB, PLDT, Ayala Corporation, Anscor, First Philippine Holdings, and SMC) during the 1988-1992 period. He finds that the market price does not adjust perfectly and stockholder gains from stock dividends are possible.

Ybañez (1993) reviews the performance of 43 Philippine initial public offerings (IPOs) for the 1989-1993 period, and explores various issues surrounding the observed rates of returns. He finds that IPOs of common stocks are found to have significant excess returns on listing day: the mean raw return of 32 actively traded IPOs is 42.1 percent resulting in an excess return of 40.0%. But he surmises that the high returns may be the result of a speculative bubble or fad on listing day, but the hypothesis that the aftermarket is efficient cannot be rejected. He discounts the possibility that the high return is solely a premium for greater systematic risk.

Gregorio (1994) attempts to determine the relationship between Philippine interest rates and stock market returns. His results show that there is no significant relationship between 91-day Treasury bill rates and the Composite and Sectoral Indices of the Makati Stock Exchange from January 1987 to August 1993.

Kester, et al. (1996) report the results of a survey intended to assess the perceptions of executives of listed firms in Indonesia and Philippines regarding issues related to corporate financial policy. Their results indicate that Indonesian and Philippine executives believe that dividend policy affects share prices and that firms should have target payout ratios and strive to have uninterrupted dividend payments.

Unite and Sullivan (1998) investigate the short- and long-run performance of Philippine initial public offerings (IPOs) from 1987 to 1997. They estimate over a 3-year aftermarket period total returns at 48.35 percent (or 5.44 percent less than a matched set of publicly traded firms). They deduce that even if investors in Philippine IPOs make significant returns on the initial
trading day, they earn slightly lower average returns if they hold IPOs for a long period compared to holding other comparable stocks.

Valcarcel (2000) examines whether price-earnings ratio (P/E) is a good indicator of stock returns and that one good investment strategy is to buy stocks with low P/E ratios whose returns far exceed those stocks with high P/E ratios. Using stocks of 90 listed Philippine companies from 1992 to 1995, and ranking them according to their P/E ratios, she finds that price-earning ratios are not reliable guide when investing in stocks, and she recommends to look into the fundamentals of the individual stocks.

Cayanam (2001) investigates the effects of stock dividend declarations on share prices on and around all announcement dates using Philippine data. Applying the “market adjusted returns” model, he shows that no abnormal returns are observed on and around the announcement dates. His findings imply that the stock dividend declarations do not convey any information about the earnings of a firm.

Aquino (2003b) examines the role of macroeconomic fluctuations as risk factors that influence cross-sectional variability in stock returns. His regression results show that fluctuations in seven macroeconomic factors have significant influence on individual stock returns, but his exact formulation of a multifactor asset pricing model fails to individually price these risk factors. Aquino (2003b) provides three explanations for this inconclusive results: (1) available macroeconomic data do not provide adequate measures of the underlying systematic risks that influence returns, (2) lack of market efficiency may result in excess profits that can be gained by arbitrage, violating the major assumption of the multifactor model, and (3) the presence of large idiosyncratic risks that are not diversified away in investor portfolios (page 33).

Menaje (2012) investigates whether selected accounting and macroeconomic variables (earnings per share, cash flows per share, cash dividends per share, inflation rate, and 3-month Treasury bill rate) have significant impact on share prices of publicly listed Philippine banks. His results show that only the 3-month Treasury bill rate had a negative significant impact on share price, all other variables did not have significant effect on share prices.

Tan (2012) examines the relationships of stock market returns in various international markets with those in the Philippines for the period 2000 to 2010. She concludes that the integration of the Philippine stock market with the world (U.S., U.K., & Asia) is low.

**Synthesis**

The overwhelming conclusion from the various findings is that stock returns cannot be predicted based on past returns, corporate income, stock dividend declarations, price-earnings ratio, and various macroeconomic variables, or a combination of these variables. The empirical findings on IPOs are consistent: IPO earn significant returns on listing day (as low as 22.7%)

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10 Change in the end of month nominal exchange rate, monthly change in the expected inflation measure, monthly change in the index of the value of industrial production, monthly change in the U.S. dollar price per barrel of crude oil, spread between the 364-day Treasury bill rate and the 91-day Treasury bill rate, spread between the 90-day LIBOR and the 91-day Treasury bill rate, and the monthly change in the real money balances (M2).
estimated by Unite and Sullivan, 1998, and as high as 42.1% estimated by Ybañez, 1993). However, on a long-term horizon, IPOs are less attractive compared to holding other comparable stocks (Unite and Sullivan, 1998). Future studies should look at listing day versus 3-year aftermarket earnings of IPOs in other Asian countries (e.g. Singapore, Thailand, Indonesia, and India) and see whether they follow the same pattern observed in the Philippines.

3.2 On the Efficiency of Financial Markets

Lamberte (1993) conducts a balance sheet analysis of Central Bank’s (CB) assets and liabilities for the period 1980 to 1990. He concludes that the effectiveness of reforms in the financial markets has been undermined by the instability of the economy, and the CB was less effective in stabilizing the economy because it was made to perform fiscal functions that created mounting losses that led to increases in reserve money.

Cayanan (1994) examines the degree of efficiency of the Philippine stock market. Using daily returns of six stocks\(^{11}\) (accounting for 60% of the stock market index in 1992), he shows that the market is not efficient in the weak form, suggesting that technical analysis can be useful in analyzing the Philippine stock market.

Ybañez (1994) looks at the rights offerings in the Philippines for the period January 1987 to March 1995, consisting of 42 offerings by 28 companies. His results show that significant adjusted market returns averaging 7.6% on ex-date were observed. He argues that the excess returns represent a liquidity premium, and hence reflect a normalization of prices on ex-date.

Bautista (1996) conducts empirical tests of the efficient market hypothesis using Philippine monthly data on 91-day Treasury bill rate. His results reveal that, in general, Philippine financial markets are efficient in conveying information, except during the crisis period.

Ybañez (1996) provides empirical evidence of expected price adjustments on and around the ex-date of stock dividends. His results show that other than a reasonable allowance for transaction costs, there is no unusual price pattern on the ex-date of stock dividends, and for the period immediately surrounding the ex-date. He asserts that the findings are consistent with efficient market expectations.

Unite and Beveridge (1998) analyze the U.S. investors’ response to Philippine capital market liberalization using the weekly closing prices and net asset values of the First Philippine Fund from November 24, 1989 to December 29, 1995. Their results support the hypothesis that changes in the First Philippine Fund’s discounts are associated with announcements of changes in international investment restrictions: discounts increase with the liberalization of ownership restrictions implying a reduction in the cost of raising capital in the Philippine stock market.

Nartea, Hu, and Hu (2013) examine the presence of rational speculative bubbles, using descriptive statistics and duration dependence test, in the Philippine stock market over the period 1991 to 2009. Their findings reveal that the presence of rational speculative bubbles is not

\(^{11}\) Anscor A, Ayala Land B, First Philippine Holdings B, PLDT common, PNB, and SMC A.
detected, using both weekly and monthly data, but the possibility of the existence of bubbles caused by irrational investor behavior is not ruled out.

Rufino (2013) explores the weak-form efficiency of the Philippine Stock Exchange (PSE) and its different sectoral markets. He reports that the results from the unit root tests have indicated that all-shares index and sectoral indices have single unit root (nonstationary at levels, but stationary at first differences, and statistically significant) which suggests that the markets are informationally efficient: the best prediction of the actual value of the series on the next period is the actual value during the current period. Using a modified version of the variance ratio test called “wild bootstrap variance ratio” test, his results show the presence of overall informational efficiency in the Philippine Stock Exchange during the 2006-2012 period for the all-shares (Phisix) and all of its sectoral markets. He concludes that the PSE adheres to the tenets of the weak-form efficiency market hypothesis.

Synthesis

The general consensus among the studies is that Philippine financial markets are informationally efficient. However, two contrasting studies emerge from this survey. Cayanan (1994) finds that the stock market is not efficient in the weak form, while Rufino (2013) concludes that the stock market adheres to the tenets of the weak-form efficiency hypothesis. Cayanan (1994) uses daily returns of individual stocks while Rufino (2013) uses all-shares and sectoral indices. The way forward is to undertake further studies using a longer set of data at different frequency, and employing alternative techniques. Future studies may also want to test using data on returns of a sample of stocks rather than data on composite indices.

3.3 Stock Return Volatility

Aragon (1993) analyzes share price volatility in the Manila Stock Exchange over the period January 1986 to December 1993. His findings are: (1) there is no tendency for price volatility to increase, (2) sharp increases in volatility are transitory and event-driven, mostly political events, and (3) high volatility occurs both during market crashes and during bullish periods.

Aquino (2001) attempts to compute the cost of stock market volatility. He uses the capital asset pricing model (CAPM) and Black-Scholes option pricing formula to estimate the cost of volatility. He likewise identifies three sources of volatility such as event-driven volatility (e.g. debt crisis), error-driven volatility (e.g. overreactions to events) and price-driven volatility. He concludes that stock return volatility is much too high relative to the equity risk premium in the local stock market, and he observes that most of the stock return volatility appears to be price-driven.

Ang and Borja (2003) attempt to find a direct relationship between the executive stock options (ESOs) of Philippine firms and risk, using panel data covering 30 listed firms from 1998 to 2001. They test whether the presence of executive stock option plans (ESOPs) significantly affects stock price volatility. They find that the presence of ESOPs significantly affects the
volatility of the firm’s stock return, implying that the managers’ propensity to take on additional risk increases when the compensation is tied to stock options.

Bautista (2003) measures the volatility of the Philippine stock market using the regime-switching ARCH method, and relates his volatility estimates to major political and economic events and to fluctuations in economic activity as measured by the real GDP growth rate. His results show that high stock return volatility preceded a sequence of low growth periods and that the Philippine stock market was sensitive to changes in the political environment (e.g. capital account liberalization); he observes that stock return volatility in 1997 preceded the Asian financial crisis by three months.

Bautista (2005) estimates the volatility of seven East Asian stock markets (Hong Kong, Korea, Indonesia, Singapore, Malaysia, Philippines, and Taiwan) during period of liberalization in the early 1990s when capital poured in and during period of structural weakness when capital flowed out leading to the 1997 Asian financial crisis. Using a univariate Markov-switching ARCH method, he shows that global events like the 1997 Asian financial crisis led to high volatility episodes whose magnitude relative to normal times differ from country to country. In addition, he observes that country-specific events are also observed to lead to high volatility periods.

Yu (2005) expands the literature on stock market volatility and presents evidence on the asymmetric effects of positive and negative shocks on the volatility of market returns in the Philippines. He likewise compares volatility patterns using daily, weekly, and monthly data, respectively. His findings confirm the asymmetric effects of shocks on aggregate stock return volatility. He observes that the asymmetric effect of shocks on volatility diminishes with the decrease in the frequency of the distribution. He speculates that increased volatility in daily return caused by a drop in return reflects both leverage effects and overreaction of investors; and that market returns for longer periods have already incorporated market corrections for investors’ overreaction to drops in market returns.

Synthesis

Overall, the findings point to high stock return volatility: (1) volatility that is much too high relative to the equity risk premium (Aquino, 2001), (2) volatility driven by managers’ propensity to take on additional risk when their compensation is tied to stock options (Ang and Borja, 2003), (3) volatility preceding major political and economic events (Bautista, 2005), and (4) volatility due to leverage effect and investors’ overreaction to a drop in return (Yu, 2005). Nevertheless, the cause of volatility (price-driven or event-driven) remains unsettled in the literature. This is an area for future research.

Yu (2005) claims that the results provide additional evidence in support of the aggregate-level “leverage effect”: a drop in security returns lowers market value of equity and increases leverage of firms; the change in financial leverage raises risk and is reflected in increased volatility.
3.4 Testing the Capital Asset Pricing Model

Bautista (1999) applies the multi-period asset pricing models using Philippine data. Using a consumption-based asset pricing model (C-CAPM), he estimated the rate of time preference at 5.2% on annual basis, and his estimate of the risk aversion coefficient at 0.043 which is quite low compared with estimates for other countries. Applying the test for overidentifying restrictions (Hansen’s J-Test), he concludes that its non-rejection provides favourable evidence for the C-CAPM.

Yu (2002) estimates the parameters of the capital asset pricing model (CAPM) based on the average monthly stock returns of 50 common stocks listed in the Philippine Stock Exchange for the period 1996 to 2001. The results show that there are sub-periods that support the predictions of the CAPM, but other sub-periods yield results that fail to support CAPM’s predictions.

Aquino (2003a) explores the problems associated with testing the CAPM in the Philippines setting. Using stock returns for 1996-2001, he identifies two major problems: (1) that the usual market proxy used (the Philippine Stock Exchange Composite Index) very likely is not representative of the true market portfolio, and (2) the assumption that a risk-free lending and borrowing rate exists (proxied by the 91-day Treasury bill rate) is probably too restrictive for the Sharpe-Lintner-Mossin version of the CAPM to hold.

De Ocampo (2004) attempts to compare the results of the two methodologies of testing CAPM using Philippine data. His findings indicate that the conditional relationship proposed by Pettengill, Sundaram, and Mathur (PSM) perform better than the Fama and Macbeth (FM) approach in explaining risk-return tradeoff. However, the study does not assert the validity of CAPM because the first condition specified in the PSM model (e.g. the difference between market return and risk-free rate is on average positive) is not satisfied.

Gordo (2012) uses the Bayesian framework to test the CAPM using Philippine data over the period 1993-2006. He finds inconsistent results where the intercept is negative in value and only significant at the 10% level, while the risk premium is insignificant and has the wrong sign. Applying the model to SMC-A stock, he finds that the stock is underpriced and does not move as much as the market.

Synthesis

The empirical evidence on testing CAPM using Philippine data unanimously points to its failure to support CAPM, or its lack of validity. Some analysts argue that the assumptions of CAPM are too restrictive. Some of CAPM’s extreme assumptions are: (1) markets are frictionless, and information is costless and simultaneously available to all investors, (2) the borrowing rate equals the lending rate, (3) investors have homogeneous beliefs, (4) the investor takes no risks other than the risk of being in the market, (5) the model is a one-period model, and (6) expected return and risk are always positively correlated. The suggestion by Aquino (2003a)
to test CAPM using alternative proxies for the market return and the risk-free rate is an area that needs to be explored.

3.5 Studies on the Rural Financial Markets

Javier (1979) provides a synthesis of the characteristics and experiences of Philippine rural financial markets from the 1960s up to the first half of the 1970s. She concludes that past experiences in the Philippine agricultural credit market show a patchwork of remedial policies, programs and projects. She advocates to exert efforts to rationalize priorities, policies, programs, and projects to hasten the growth and maturity of the Philippine rural financial markets.

Floro (1987) examines the impact of technical change on the structure of informal credit markets in the Philippine rice and corn sectors. She argues that technical change has brought about an increased demand for credit which has led to the higher debt burden of rural households.

Patalinghug (1987) assesses the performance of rural banks, particularly the role of rediscounthing and savings mobilization in enhancing their viability. The evidence suggests that Philippine rural financial institutions can mobilize savings as a reliable source of funds. Lamberte and Bunda (1988), Blanco and Meyer (1989), Bautista and Lamberte (1990), and Abiad and Llanto (1991) later affirm the validity of the capacity of rural households to save.

Lamberte and Bunda (1988) describe the informal credit markets (ICMs) operating in a low-income urban community and try to address the following: (1) who are the major participants in the ICMs, (2) what is the size of their operation, (3) what is the structure of the market, and (4) what is the role of ICMs in saving mobilization. They recognize that savings can be mobilized in low-income communities, but a convenient instrument for tapping savings should be devised. They argue that the “paluwagans” or credit associations are playing an important role in informal financial markets.

Tolentino (1988) argues that many government efforts to channel credit to agriculture were eclipsed by adverse effects of the programs and policies despite good intentions. And he admonishes against undue government intervention in the financial market because it can lead to undesirable results.

Geron (1989) develops a model of the economic behavior of agents in a credit-output market, specifically looking at how borrowers and lenders interact with one another. Her empirical results show that higher interest rates were observed in the more developed areas due to improved and better services employed by lenders in these areas.

Llanto (1989) discusses the small borrowers’ lack of access to bank credit and other financial services within the framework of asymmetric information that rural financial markets face. He recommends that the government can address the asymmetric information problem in rural financial markets by (1) putting an accreditation system on many grassroots and self-help organizations, (2) providing resources for skills training on various aspects of financing, project
identification, and project management, and (3) providing guarantee cover for rural loans to offset part of the default risk.

Untalan and Cuevas (1989) examine the components of the transaction cost of rural financial intermediaries. They conclude that funds mobilization activities account for a greater part of the total transaction cost for branches of commercial banks (KBs), private development banks (PDBs) and rural banks (RBs). They document that KBs have a larger portion of their transaction cost contributed by funds-mobilization activities than their lending operations, and the opposite is true for the RBs.

Abiad and Llanto (1991) look at the effects and lessons learned of (1) past macroeconomic policies that were biased against agriculture, (2) a “cheap” credit environment, and (3) a highly regulated market on the flow of credit to the agricultural sector. They identify the lessons learned from experience: (1) a policy of loan targeting and subsidized credit does not work, (2) the provision of cheap credit does not make an unprofitable activity profitable, (3) cheap credit inevitably worsens the distribution of income: subsidies were largely captured by formal lenders, not by farmer-borrowers, (4) to assure the sustained flow of credit to the rural sector, the price of a loan (the interest rate) must be sufficient to cover the lender’s costs, (5) financial institutions are more likely to remain viable in the long run when they mobilize savings in addition to lending activities, (6) heavy regulation of the financial system is largely self-defeating, and (7) the credit needs of small farmers have not been sufficiently met. To increase the flow of credit, increase food production, and raise agricultural productivity, they recommend that the government must provide infrastructure and stable policy environment.

Bautista (1991) examines how changes in rural financial markets and agricultural sector policies contributed in shaping the structure and operations of rural financial market in the Philippines. He concludes that the supply-led finance increased credit to the targeted sectors but undermined the viability of the rural banking system and fostered dependence and inefficiency among participating financial institutions in the government-sponsored lending programs.

Lapar and Graham (1991) provide empirical support for the continued existence of credit rationing in the rural financial markets of the Philippines. They observe that the incidence of over-the-counter type of rationing (initial screening carried by the bank manager) is high in private development banks (PDBs) and branches of commercial banks (KBs) which are more risk averse in choosing loans applicants and are much less committed to local-level lending activity than rural banks (RBs).

Teh (1991) provides a rigorous and detailed examination of the theoretical and empirical literature on agrarian reform and interlinking. He suggests to ban credit interlinking and land reform because property rights restrictions in land reform (e.g. restrictions on resale) are not Pareto-efficient.

Lim (1993) focuses on the relationship between overall macroeconomic policy and rural finance to address the shortage of credit for agricultural production. He reasons out that laudable measures proposed to address the rural credit gap (such as intensifying rural savings mobilization, the use of the Comprehensive Agricultural Loan Fund, CALF, to guarantee for
agricultural loans from the financial sector, programs to support credit cooperatives, and programs to increase agricultural productivity) are being undermined by macroeconomic policies. He specifically identifies these policies, among them are: (1) tight money which restricts credit, (2) restrictions on bank entry into rural areas, (3) low savings deposit rates, (4) lack of investments in rural infrastructure, (5) stagnation in the implementation of agrarian reform, and (6) a weak government bureaucracy in the rural areas.

Lamberte (1994) reviews and examines the special features of the policy-based lending programs and policy conditionalities and their impacts on the various players in the credit markets. He argues that no definite conclusion can be drawn from the findings of this study because several intervening variables could have weakened the contribution of the policy-based lending programs to the performance of the targeted sectors.

Hossain and Diaz (1997) evaluate the Grameen Bank Replication projects in the Philippines undertaken by the Center for Agriculture and Rural Development (CARD) under their replication model known as the Landless People’s Development Fund (LPDF). They conclude “that CARD has largely succeeded in reaching low-income households with credit” (page 306). But CARD incurred a loss of 17% of its total expenses because the high rate of interest charged on loan does not cover its high operation cost. They recommend that “the government should mobilize adequate donor support on behalf of the replicators to reduce the cost of loan funds, so they could minimize financial losses…The government should not control the rate of interest charged by replicators in microcredit operations. Without a high rate of interest microcredit operators would not be able to expand operation on a scale large enough to have a significant impact on poverty alleviation” (page 307).

Llanto, Garcia, and Callanta (1997) assess the capacity and financial performance of a sample of microfinance institutions operating in the Philippines. They observe that outreach remains small and limited, but the poor borrowers and savers predominate among clients of the microfinance institutions. They stress that credit NGOs face three problems: (1) they lack legal personality leading to lack of capacity to develop and offer innovative financial products, (2) they lack a poor-focused extensive and viable delivery system, and (3) they lack the resources to provide training to potential clients. Thus, they recommend to transform credit NGOs into full-pledged formal financial institutions (e.g. private bank, finance company, nonstock savings and loan association, or credit cooperative), promote networking with private banks interested in providing microfinance services for the poor, provide microfinance institutions with access to grants and government assistance to fund training costs of the poor, continue staff training and upgrade pay scales to retain competent personnel, and rationalize government credit programs and allocate funds for capacity building and training of microfinance institutions.

Briones (2002) tests the hypothesis (using survey data) that advances become larger as subcontractor’s location becomes more geographically remote. He argues that within the subcontracting arrangements between urban traders and rural-based manufacturers, the payment of advance is a form of credit interlinking which addresses the isolation of rural-based enterprises from the formal finance sector. His empirical analysis confirms the hypothesis.
Zapata (2006) investigates the rationing rules used by informal lenders in dealing with micro-entrepreneurs. Using a sample of 108 entrepreneurs from a public market in Los Baños, Laguna, his results show that those who are less educated, married, and have large household sizes are more likely to borrow from the informal lenders; and on the supply side, he shows that the average daily sales of the enterprise is the main variable that lenders consider in rationing credit.

Llanto (2007) discusses the need for an appropriate regulatory framework for microinsurance and provides specific recommendations to address the challenges facing this emerging segment of the financial market. He recommends: (1) to document existing microinsurance schemes, practices, and delivery models that could address the demand for insurance by low-income households, (2) to review the current regulatory environment identifying barriers to sound microinsurance, (3) to formulate and adopt appropriate rules, regulations, and guidelines for safe and sound operations of microinsurance institutions and the protection of policy holders, and (4) to review the technical capacity and capability of the Insurance Commission to effectively supervise and monitor the operation of the microfinance providers.

**Synthesis**

The observation made by Javier (1979) that past experiences in rural financial markets show a patchwork of remedial policies, programs, and projects is appropriately relevant in describing the diverse issues tackled by the studies reviewed in this section. The issues discussed are too disparate from each other: the effect of technical change on the debt burden of rural households, the role of credit associations (“paluwagans”) in mobilizing savings in low-income communities, how borrowers and lenders interact with each other, addressing asymmetric information problem, the effects of macroeconomic policies, how government can assist in Grameen Bank replication program, credit rationing, credit interlinking and land reform, advanced payment and interlinking, the capacity and performance of microfinance institutions, and microinsurance, among others. However, the majority of the studies agree that government-sponsored lending programs to targeted sectors create dependency by participating financial institutions but do not address the fundamental problems facing rural financial markets such as asymmetric information, high cost of intermediation, high risks of rural projects, deficient infrastructure, and low productivity. The areas for further research are to further investigate these issues with increasing availability of data and alternative quantitative techniques (e.g. natural experiments and randomized controlled trials).
### Table 2

**Studies on the Financial Markets**

A. On the Predictability of Stock Prices

<table>
<thead>
<tr>
<th>Study</th>
<th>Time Period</th>
<th>Type of Data</th>
<th>Functional Form</th>
<th>Estimation Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kester, et al. (1996)</td>
<td>1994-1995</td>
<td>CEOs of Listed Firms in Indonesia (81) and Philippines (41)</td>
<td>N. A.</td>
<td>Survey Method</td>
</tr>
<tr>
<td>Menaje (2012)</td>
<td>2002-2008</td>
<td>Annual</td>
<td>Linear</td>
<td>Panel Data Regression (Fixed Effects and Random Effects)</td>
</tr>
<tr>
<td>Tan (2012)</td>
<td>2000-2010</td>
<td>Weekly</td>
<td>Linear</td>
<td>VAR</td>
</tr>
</tbody>
</table>
## B. On the Efficiency of Financial Markets

<table>
<thead>
<tr>
<th>Study</th>
<th>Time Period</th>
<th>Type of Data</th>
<th>Functional Form</th>
<th>Estimation Technique</th>
</tr>
</thead>
</table>
C. Stock Return Volatility

<table>
<thead>
<tr>
<th>Study</th>
<th>Time Period</th>
<th>Type of Data</th>
<th>Functional Form</th>
<th>Estimation Technique</th>
</tr>
</thead>
</table>
D. Testing the Capital Asset Pricing Model

<table>
<thead>
<tr>
<th>Study</th>
<th>Time Period</th>
<th>Type of Data</th>
<th>Functional Form</th>
<th>Estimation Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquino (2003a)</td>
<td>1996-2001</td>
<td>Monthly</td>
<td>Linear</td>
<td>OLS</td>
</tr>
<tr>
<td>Gordo (2012)</td>
<td>1993-2006</td>
<td>Monthly</td>
<td>Linear</td>
<td>Monte Carlo Simulation</td>
</tr>
</tbody>
</table>
### E. Studies on the Rural Financial Markets

<table>
<thead>
<tr>
<th>Study</th>
<th>Time Period</th>
<th>Type of Data</th>
<th>Functional Form</th>
<th>Estimation Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Javier (1979)</td>
<td>1960-1975</td>
<td>Annual</td>
<td>N. A.</td>
<td>Descriptive Analysis</td>
</tr>
<tr>
<td>Lamberte and Bunda (1988)</td>
<td>1984-1985</td>
<td>Cross-section of 7 money lenders, 8 paluwagan units</td>
<td>N. A.</td>
<td>Descriptive Analysis</td>
</tr>
<tr>
<td>Tolentino (1988)</td>
<td>None</td>
<td>Annual</td>
<td>N. A.</td>
<td>Descriptive Analysis</td>
</tr>
<tr>
<td>Geron (1989)</td>
<td>1988</td>
<td>Cross-section (20 money lenders &amp; 100 borrowers)</td>
<td>Linear OLS (Profit Function)</td>
<td></td>
</tr>
<tr>
<td>Untalan and Cuevas (1989)</td>
<td>1987</td>
<td>Cross-section of 49 banks</td>
<td>Linear</td>
<td>Accounting Method</td>
</tr>
<tr>
<td>Teh (1991)</td>
<td>None</td>
<td>N. A.</td>
<td>N. A.</td>
<td>Theoretical Narrative</td>
</tr>
<tr>
<td>Hossain and Diaz (1997)</td>
<td>1990-1996</td>
<td>Annual</td>
<td>Ratios</td>
<td>Descriptive Analysis</td>
</tr>
<tr>
<td>Llanto, Garcia,</td>
<td>1991-1995</td>
<td>Annual</td>
<td>Ratios</td>
<td>Descriptive Analysis</td>
</tr>
<tr>
<td>Reference</td>
<td>Time Period</td>
<td>Sample Description</td>
<td>Model Type</td>
<td>Method</td>
</tr>
<tr>
<td>----------------------</td>
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<td>----------------------------------------</td>
<td>---------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>and Callanta (1997)</td>
<td>June 1996-</td>
<td>120 garment and metalcraft subcontractors</td>
<td>Semilog</td>
<td>OLS</td>
</tr>
<tr>
<td></td>
<td>September 1997</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zapata (2006)</td>
<td>None</td>
<td>N. A.</td>
<td>Descriptive Analysis</td>
<td></td>
</tr>
<tr>
<td>Llanto (2007)</td>
<td>None</td>
<td>N. A.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
IV. Other Studies in Banking and Finance

4.1 Applying Alternative Statistical Models

Lamberte (1984c) analyzes bank behavior by treating banks as producing units. He considers alternative forms of production technology each representing a particular pattern of bank behavior and allows the empirical estimates determine which of the alternative forms\textsuperscript{13} best describes the actual behavior of commercial banks. His findings reveal that the unrestricted model, which does not allow for differences in the structure of production during the time period examined, is the model that best describes the production technology of banks.

Llanto and Orbeta (1992) apply both the multiple discriminant analysis (MDA) and multinomial logit analysis (MNL) to analyze the balance sheet and profit-and-loss data of 816 rural banks in 1986. They conclude that the application of statistical models to classify and identify problem banks provides a promising area for future research.

Pasimio (1996) employs two binary choice models (discriminant analysis and logit analysis) for the purpose of developing a credit scoring tool for evaluating the creditworthiness of local government units (LGUs) in the Philippines and using data on review of LGU performance as borrowers of the Municipal Development Fund (MDF). Her findings suggest that good LGU payors exhibit quite distinct financial characteristics from poor LGU payors. She concludes that quantitative credit scoring models can be employed to assess the creditworthiness of Philippine LGUs.

Mapa (2003) proposes the use of a new variant of the ARCH class of models called GARCH-PARK-R model\textsuperscript{14} which utilizes extreme values to provide a good alternative to the “realized volatility” model. The latter requires a large amount of intra-daily data which are relatively costly and are not readily available. His findings show that using the GARCH-PARK-R model is a good middle ground between intra-daily models (e.g. realized volatility) and inter-daily models (e.g. ARCH).

Yu, Goyeau and Bautista (2011) apply an alternative approach in measuring time variation in market risk. Using monthly data of stock returns in the Philippine Stock Exchange from March 1993 to February 2006 (22 common stocks of 17 firms) they employ a Markov-switching model to estimate market risk that varies with occasional and discrete shifts in states. Their results show that the Markov-switching model is a viable alternative in evaluating the market risk of firms in the Philippines.

\textsuperscript{13} The three alternative functional forms considered by Lamberte (1984c) under the family of multiproduct joint cost function are: (1) hybrid Dievert multiproduct joint cost function, (2) quadratic multiproduct joint cost function, and (3) transcendental logarithmic multiproduct joint cost function. The study employed the third functional form (unrestricted model without time dummies).

\textsuperscript{14} Generalized Autoregressive Conditional Heteroskedasticity Parkinson Range model.
The consensus among the studies reviewed in this section is that particular statistical models (e.g. discriminant analysis/logit analysis to classify good from problem banks or good-paying LGU from poor-paying LGU) are useful in addressing particular research problems in banking and finance. Recent studies on banking and finance are following this methodological trend, and most probably there is more room to pursue future research towards this area.

4.2 Macroeconometric Models

Encarnacion and Castro (1972) develop a submodel of the monetary sector which considers money supply as endogenous. This submodel supplements the basic macroeconometric model developed earlier by Encarnacion, Mariano, and Bautista (1971) that treats money supply as an exogenous variable. Their model’s estimates for 1970 seem reasonably accurate, but the model’s estimate of Central Bank’s loans to the commercial banking system is overestimated by 28 percent.

Reside and Basu (1996) employ a monetary endogenous model with an explicit banking sector to undertake simulations on the effect of monetary policy on output growth and inflation across countries.

Dakila (2001) conducts empirical simulations of his modified version of nominal feedback rules for the conduct of monetary policy. His findings support the view that forward-looking nominal instrument rules provide better performance in terms of keeping inflation closer to the targeted level (see also Section 2.2).

Mariano, Dakila, and Claveria (2003) develop a structural long-term annual macroeconometric model of the Philippine economy to provide the BSP a quantitative tool to forecast headline and core inflation rates one to two years into the future. This model has several new features compared to previous models.15

Recently only Bangko Sentral ng Pilipinas’ (BSP) Department of Economic Research (DER), and particularly its new sub-unit: the Center for Financial and Monetary Policy, has continuously undertaken full-blown macroeconometric studies. BSP has a comparative advantage pursuing this research because it is costly to pursue, and the undertaking is imbued with free-rider problem: society benefits but the initiator bears the cost. However, BSP’s efforts are also intended to address its particular needs: to forecast inflation one or two years into the future, to determine the channels through which BSP’s policy levers are transmitted in the monetary sector, among others (Mariano, Dakila, and Claveria, 2003).

15 These features include: (1) modeling in greater detail the determination of prices in the system, (2) incorporating explicitly the channels through which the impact of changes in the BSP’s policy levers are transmitted in the monetary sector of the model, and (3) tracing the transmission mechanisms from the monetary sector to core and headline inflation, wages, employment, and output.
Table 3
Other Studies in Banking and Finance

A. Applying Alternative Statistical Models

<table>
<thead>
<tr>
<th>Study</th>
<th>Time Period</th>
<th>Type of Data</th>
<th>Functional Form</th>
<th>Estimation Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Llanto and Orbeta (1992)</td>
<td>1986</td>
<td>Cross-section of 816 rural banks</td>
<td>Linear</td>
<td>Discriminant/Logit Analysis</td>
</tr>
<tr>
<td>Pasimio (1996)</td>
<td>1984-1993</td>
<td>Annual</td>
<td>Linear</td>
<td>Discriminant/Logit Analysis</td>
</tr>
</tbody>
</table>

B. Macroeconometric Models

<table>
<thead>
<tr>
<th>Study</th>
<th>Time Period</th>
<th>Type of Data</th>
<th>Functional Form</th>
<th>Estimation Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encarnacion and Castro (1972)</td>
<td>1950-1969</td>
<td>Annual</td>
<td>Linear</td>
<td>OLS</td>
</tr>
<tr>
<td>Reside and Basu (1996)</td>
<td>N. A.</td>
<td>N. A.</td>
<td>Nonlinear</td>
<td>Simulations</td>
</tr>
</tbody>
</table>
V. Conclusion

5.1 Summary

The previous sections give substantive information on the results of research in banking and finance, identifying for each study, the author(s), year of study, time period of data, type of data, functional form (if applicable) and research methodology.

The weight of the available evidence points to no general findings or consensus in most areas in banking and finance surveyed in this paper. Research related to determining the appropriate monetary variable (choice between narrow money versus broad money) is inconclusive. Research on market efficiency and stock market volatility points to a state of approximate consensus of an efficient but volatile market. Results on research testing the applicability of capital asset pricing model (CAPM) unanimously failed. Research on the production efficiencies of banks (small vs large banks) produced conflicting results. And research on the rural financial markets is driven by issue(s) of current interest at that time: targeted credit programs, LGU finance, credit interlinking, microfinance, and microinsurance.

5.2 Implications for Public Policy

Bank capital adequacy policies are geared to produce stronger banks and a more stable banking institutions. However, research reveals that remaining stronger but bigger banks have increased their market power. How are these findings to be interpreted? Some researchers are exploring the search for evidence on the optimal trade-off between stability and competition. What is the optimal number of safe and stronger banks in this country?

Developing the rural financial market is another policy-leading trap. For instance, expansionary credit policies in the past succeeded in increasing the flow of credit to the targeted sectors in the short run, but did not improve the creditworthiness of the beneficiaries in the long-run, and encouraged dependence among financial institutions on funds sourcing from the donors and government lending programs instead of mobilizing funds from internal bank lending and deposit operations.

Outreach of microfinance institutions remains small and limited (Llanto, Garcia, and Callanta, 1997) and market-oriented policies like realistic interest rates are likely to be similarly limited in expanding access (Lapar and Graham, 1991) to small borrowers. The replication of the Grameen Bank success story in the Philippine setting resulted to the same problem: its viability can only be assured with maintenance of high interest rate coupled with donor/government fund mobilization without ensuring expanded access.

5.3 Implications for Future Research

The major implications for future research have already been mentioned in the “synthesis” segment of previous sections. However, the implications, in general refer to other research methods with much potential to test hypotheses in banking and finance, which probably can reinforce existing findings, remedy defects of current approaches, or provide new and
revealing insights. For instance, the natural experiment and randomized controlled trials (RCTs) can be employed in banking and finance research (particularly in microfinance and microinsurance), most specifically in assessing how beneficiaries, with the same socio-demographic characteristics as non-beneficiaries, are affected or benefitting from financial products and services offered by rural financial institutions, vis-à-vis non-beneficiaries.

One value of this “survey” paper is to help identify areas and issues which have not been studied or not studied enough, but which have the potential to strengthen, complement, confirm, or clarify findings of past studies. For instance, more studies on income and interest rate elasticity (both short-run and long-run) of money demand are areas worth exploring in the globalized monetary environment.


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