CHAPTER-1

Introduction

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1.1 Prologue:

Macro economic variables capture the business cycles of an economy and reflect behaviour of the economy with or without any interaction with the world as a whole. On the other hand, stock market is considered by the scholars as a mirror of the economy (Galbraith, 1954). Stock market deals with the share of claims on firm's assets. It is a popular belief that, stock prices largely depend and fluctuate sharply to the changes in any economic, financial or political events and news. Scholars also argue that the prices of the individual shares change due to shocks transmitted by several expected and unexpected financial, micro and macro-economic variables shaped by the economic policy measures. However, the impacts of the variables in the formation of prices are not equal and may be immediate or gradual in nature (Gruen et. al. 1997). According to portfolio theory investors can diversify the risk save the systematic component of the risk. This systematic risk is argued to be the major source of investment risk as the unsystematic one is significantly diversifiable. Hence, a long- term reward is required to be introduced whenever the particular price of the share is influenced by the systematic financial or economic variables. Till date, a conclusive answer as to which events influence all the assets has not yet been identified. Chen, Roll and Ross (1986), are in the opinion that the co-movements of asset prices suggest the presence of underlying exogenous influences, however the economic variables responsible for such co-movements have not been identified. Moreover, the influence or the relationship varies across the economies, especially in developing and underdeveloped economies (Wangbangpo and Sharma, 2002).

1.2 A Quick Look Back to Indian Economic Policies:

Health and direction of an economy, in general, is largely guided by the ideology followed by the countries; it is shaped by enacted rules, regulations and acts which are not time invariant.

The acts, rules and regulations represent the general economic policies which shape the economic activities carried on in the country and are reflected through several macroeconomic variables. Policy planners around the globe are actively engaged to shape their economies with the primary objective to provide a good standard of living to their countrymen. After gaining independence, Indian policy planners also tried their best to gift a healthy and balanced economy which will primarily feed their countrymen and be self reliant on production of food articles and essentials. In pursuing the socialistic pattern, India has framed and enacted several rules, regulations, and acts and floated several financial institutions to shoulder the mammoth task to free the economy from the stagnation encountered in entire British era thus ensuring that private capital had limited or no role in the system.

In a quick look back to Indian economy, we find that the period up to mid-1960s, is marked as the 'formation period' because of the fact that a set of new rules, regulations and acts were passed; while institutions were established to provide the basic legal and infrastructural base to function and encourage economic activities which were in turn expected to augment economic development. While some degree of success was achieved in that period of twenty years which stressed on economic planning' for five years, import substitution and self-reliance as the basic guiding principles. But, those were not sufficient to achieve the desired growth in the economy to feed all the hungry mouths and in uplifting the standard of living of all the countrymen irrespective to their status and wealth. When almost all the other Asian

countries began to exhibit their serious interest and efforts in export-oriented high-growth strategies and at the same time several scholars were debating and advocating for 'free-economy', Indian planners adhered to more rigid and inward-looking economic policies; consequently, the period between 1965 to 1980 exhibited relative economic stagnation (Mohan, 2017). Panagariya (2021) also expressed that the goal of economic self-sufficiency single handedly held the Indian economy back for nearly first four decades after independence. He, further, argued that the dualistic structure, with capital concentrated in formal i.e capital intensive sectors, under public sector and labour in informal i.e., small scale sector has continued to haunt India till date (Panagariya, 2021). Excessive reliance on labour intensive industries over capital intensive industries, 'License, permit Raj', reservation of sectors for small scale industries, heavy presence of public sector undertakings, insufficient flow of capital to small and medium scale industries, uneconomic i.e, lower scale of production and operation of both the large and medium scale industries resulting in higher cost of production relative to other countries ultimately narrowed down the horizon of exports. Protection of Indian industry by import licensing, elimination of all sources of competition amongst domestic enterprises, irrespective to their status whether small, medium or large, resulted in inefficiency of scale and lack of diversification of the products. Furthermore, excessive reliance on the banking sector and revenues earned by the State to finance the industries in conjunction with lack of initiatives to develop the stock market -a good provider of capital -are some major issues that held back the economy (Panagariya, 2021).

In India, 1980s is a period of hesitant transition from the hitherto controlled framework to open economy. Kohli (1989) nicely coined it as 'one step forward and two step backward' policy towards liberalisation and globalisation. The severe balance-of-payment crisis in 1991 ignited the process of comprehensive reforms, setting in motion the transformation of India

towards the much publicized and optimistic model of 'free economy' from the year 1992. This new philosophy was focused on development by creation and distribution of wealth instead of creation of wealth only by the State. Financial and trade liberalization with 'borrowing and lending at substantial real rate of interest' and 'a stable price level' are the primary commitments of this new economic policy (Ray, 2007). It is worthy to note that, in the prescription of free economy, role of stock market is favoured more than the banks and financial institutions in mobilization and allocation of surplus generated by domestic and foreign economic units (Kanagasapathy, 2001; Reddy, 2002; Ray, 2007; Mohan, 2017). According to Ray (2007), the policy significantly entails a move towards a more market-oriented system to usher in healthy living to all economic organisms. Chikermane (2017), identified 70 Acts which had been enacted to shape the economy for the last 70 years till 2017.The chronological presentation of the Acts purposefully depicts the economic policy persuaded by the Indian planners in both the pre and post liberalisation periods along with the measures to develop the stock market. According to Chikermane (2017) the policies are the summary expressions of India's economic experiments, from inward-looking import substitution model to globalisation—an export-led growth initiative. The policies highlight the transformation of the Indian economy focussing attention from agriculture (Note: 1) to services, from nationalisation to privatisation, from basic survival to global goals (Appendix-1).

1.3 Statement of Problem:

Despite the endless debate by the scholars from finance and economics, our knowledge about asset market behaviour is still unclear. The relation between stock market and the macroeconomic variables is not entirely unidirectional. According to the diversification argument of capital market theory, general economic state variables will influence the pricing

of large stock market aggregates and the systematic variables, which affect the economic activities and influence dividends, are also expected to influence stock market returns (Chen, Roll and Ross, 1986). In summation, the theories fail to give a definite answer about `what variables influence stock prices' and `what are the directions of the influence, if any'. Are the changes in macroeconomic variables and stock price movements inextricably entwined? The answer is important in the sense that it may help individual or institutional fund managers to estimate, monitor and manage financial risk, price derivatives and find efficient solutions to the problem of optimal portfolio. From the policy planners, it may help to develop a better understanding of the potential macroeconomic determinants of systematic financial risk (Cochrane, 1999; Dopke et al. 2006).

1.4 Theoretical relation between Stock market and Select Macroeconomic Variables:

Experiences of emerging market economies showed that the uncertainty about the outcome of the 'free economy', the 'interventionist' approach showed little interest and even bypassed the direct investor investment mechanism. The supporters of control regime prefer to regulate, monitor and control mobilization and allocation of funds generated by the economic units through state owned or controlled public sector banks, insurance organizations and special purpose financial vehicles. At the same time, investors favour the system as the government ownership and control of financial institutions can guard them from the possible losses arising out of bankruptcy or liquidation of the financial institutions. The 'control regime' increases investors' confidence on the entire financial system by providing assurance for security and liquidity—the two vital basic pillars of financial investments; this sentiment of the investors restrain the policy planners, in general, to try a new economic philosophy. At same time, scholars argue that, if the market forces determine the rates and drive them up

sufficiently due to either increased demand for credit or by decrease in the money supply, the outcome will be a substantial fall in lending. This will, ultimately, result in net decline in investment and aggregate economic activity and vice versa (Mishkin, 1992). Hence, we feel sufficient opportunities exist within this study to assess the relationship between macro variables and 'mirror of the economy' across regimes; specifically between the pre and post liberalisation periods of India.

At the outset, we feel it essential to describe the macroeconomic variables selected in the present study to assess their relationship with the stock market. Identification of the macroeconomic indicators for depicting the states of development in the developed, developing and under developed economies with the typical feature of controlled economy is a long debated, however yet unsettled issue. The process of selection and rejection from the set of numerous macroeconomic variables that presumably influence stock return is obviously a difficult task, if not an impossible one. We have relied on two principles to balance the problem- i) follow earlier prominent studies like, Schwert (1989), Asprem (1989), Kwon et al. (1997), Bilson et al. (2000), Guo (2003), Clark and Kozicki (2004), Chancharoenchai, et al. (2005), Rapach et al. (2005), Sollis (2005), Paye and Timmermann (2006) , Ray (2007), Machado et al. (2017), Bernardelli and Castro (2020) and others, and, ii) apply our own economic intuition and judgment (Chen et al. 1986). Finally, Index of Industrial Production(IIP), Whole Sale Price Index(WPI), Yields on 91-days Treasury Bills(YTB) , Yields on Long-term (10-years) Government Bonds(YLGB) and rupee-dollar nominal rate(FX) representing growth, inflation, money market and foreign exchange market, respectively, are chosen to study the influence of macroeconomic variables on aggregate market return of the risk-assets (SNX) in India across the pre and post liberalisation regimes. A brief description of the selected variables and underlying theoretical relations with equity market are outlined below. Nevertheless, it is important to mention that all the

variables selected in the present research is significantly interrelated with one another and any attempt to measure the exclusive influence of any single variable on asset price may be inadequate, confusing and misleading. The relations are, in brief, below:

1.4.1 Industrial Activities and Stock Market:

While examining the relationship between macroeconomic variables and stock returns, Fama (1981) posited that stock returns are positively related to real variables like output and the same is confirmed by several researchers through their empirical works based on a variety of economies and time-horizons (Bilson et al. 2000; Arestis et al. 2001; Paye and Timmermann 2006; Ray 2007; Machado et al. 2017; Bernardelli and Castro, 2020). Theorists further argue that allocative efficiency of stock market contributes to faster economic growth which in turn adds to the vigour of asset market activities. Obstfeld (1994), suggests that opportunities for risk reduction through global diversification make high-risk-high-return domestic and global projects attractive, which ensures faster economic growth and stock market activities.

In empirical studies, Index of industrial production (IIP) is a common and widely used macroeconomic variable to proxy the growth of an economy. In a frictionless economy, any change in the economic policy measure is expected to reflect well by the stock index for industrial production. Hence, we can safely assume that industrial activities and stock market behaviour is positively related. Some economists suggest that one of the differences between the developed (pursuing free economic policy) and under developed or developing economy (typically those who are pursuing not the free economic policy) is that the former has a more matured and well-developed financial system which includes well developed stock market than the latter (Demirguc-Kunt and Levine, 1996).But the direction of causation between stock market and economic growth measured through index of industrial production is still unclear, and the issue deserves more attention by the researchers.

1.4.2 Inflation (WPI) and Stock Market:

Fama (1981) in his seminal work concludes: (i) there exists a negative relationship between stock (excess) returns and inflation, and that negative relationships are induced by the negative 'inflation-real-activity effect' and (ii) higher inflation rates induce higher nominal risk-free returns, that is, a discount rate that results in a decrease in asset prices. This assertion is particularly relevant if we rely on the theory that stock prices reflect discounted value of expected dividends. In supporting the 'proxy hypothesis' of Fama, Shen(1998) further extends and enriches the study by incorporating the impact of unanticipated inflation on the behaviour of economic agents and movement of stock prices. Shen finally suggests that the portion of inflation rate unanticipated by the economic agents and capital market would surprise markets and cause dramatic movement of stock prices through changes in investor's expectation of compensation in the form of additional returns or yields. In a recent study Chancharoenchai et al. (2005) reviewed the complex relationship between inflation, volatility, risk premium and its impact on asset prices and reiterated the findings of earlier studies. In essence, early experiences suggest that both anticipated and unanticipated inflation inversely affect asset price.

1.4.3 Yield Rates (YTB, YLGB) and Asset Price:

'Cost of risk-free capital, that is, yield on Treasury bills, is widely used as a benchmark tool in both micro and macro-economic decision-making. It is widely argued that stock price represents discounted value of expected dividend .Following this highly acclaimed theory, any rise in risk free rate measured in terms of the yield on Treasury Bills will result in a decline in asset price and vice versa. Theorists argue that, an arbitrary rise in the cost of risk-free capital will drive up cost of borrowing of all other alternative sources of funds in the economy as restrictive movement or no movement of capital across the countries is a typical

feature of controlled economy (Lopez-Mejia, 1999) and the arbitrarily fixed higher rates of return on risk free capital will attract the available surpluses to that sector. This will, at least in the short-run, lead to an increase in interest rates of other available alternative sources of borrowing in the country. In this situation, lenders will find it difficult to lend because of the potential increase in business risk and possible rise in the problems like 'adverse selection' (Mishkin, 1999). Ultimately, the effective investment and economic activity of a country will be affected seriously.

Virtually, interest rate, savings, investment and their impact on asset price are marred by endless debate with no sign of settling. The advocates of Keynesian theory suggest- i)low interest encourages more consumption that leads to increase in demand, and ii) this increase in demand promotes investment and growth of the economy that influences functioning of the asset market. On the other hand, neo-liberalists reject the Keynesian view and suggest that rise in real interest rate helps to accumulate more savings, with the result that more funds would be available for investment; hence, the equilibrium rate of investment and efficiency of firms will finally increase. Neo-classical theorists further argue that, as stock market can allocate resources more efficiently, this sort of competitive market will assume an important role in the changed regime (Agarwal, 2004; Fry, 1978).

Thus, discussions on interest rate and its impact on asset market fail to give us any definite clue regarding the complex relationship that exists between these variables.

1.4.4 Stock Market and Foreign Exchange Market:

The dynamic relationship between stock prices and exchange rates is aptly explained by 'flow' and 'stock' oriented models. The flow-oriented model emphasizes on the trade balance and advocates that changes in exchange rates affect international competitiveness while trade balances in the process influence real income and output (Dornbush and Fisher, 1980). The

followers of stock oriented model focuses on demand and supply of financial instruments, especially stock and bonds and posit that changes in stock prices affect output through wealth and investment decisions which ultimately influences money demand and exchange rates (Gravin, 1989; Mishkin, 2001; Dimitrova, 2005).The 'stock-oriented' models of exchange rates view the rate as equating the supply of and demand for assets like stock and bonds and unlike the former emphasizes upon the role of capital accounts in determining exchange rate dynamics. Since the values of financial assets are determined by the present values of their future cash flows, scholars argue that, expectations of relative currency values play a considerable role in their price movements, especially for internationally held financial assets. Thus, changes in stock prices may affect or be affected by exchange rate dynamics (Branson, 1983; Franke, 1983; Yang and Doong, 2004; Ray, 2008).

In empirical analysis, scholars found contradictory evidences on the relationship between stock and foreign exchange market. Aggarwal (1981) found U.S stock prices are positively correlated with the 'trade weighted' dollars. But, Soenen and Hennigar (1988) have found a strong negative correlation between U.S stock prices and fifteen currency-weighted value of the dollar. Ma and Kao (1990) have provided some possible explanations for these contradictory evidences. Their study, based on six industrially developed economies, suggests that the currency appreciation has a negative effect on the stock market of export dominant economies and boosts the stock market of import- dominant economies. According to Ajayi and Mougoue (1996) an increase in stock prices causes the currency to depreciate. They argued that, rising stock market is an indicator of an expanding economy in conjunction with higher inflation expectations. Foreign investors discount this signal negatively and their demand for the currency of the economy with a booming stock market falls and leading to its depreciation. In this regard, Granger, Huang and Yang (2000) argued that, in the markets with high capital mobility, it is the capital flows and not the trade flows that determine the

daily demand for currency. A decline in stock prices induces foreign investors to sell the financial assets they hold in the respective currencies which in turn results in the depreciation of the relevant currency. Hence, the researchers suggest that currency will depreciate if stock market declines and the stock prices are expected to react ambiguously to exchange rates as depreciation of currency could either raise or lower the value of a company depending on whether the company mainly imports or exports. In literature, there is no unanimity among researchers regarding the form of the relationship (positive or negative) (Mok, 1993; Mukharjee and Naka, 1995; Abdalla and Murinde, 1997; Chiang et al. 2000; Nieh and Lee, 2001; Dimitrova, 2005; Machado et al. 2017; Santana et al. 2018; Noriller and Silva, 2019; Bernardelli and Castro, 2020).

1.5 Conclusion:

In general, people believe that, stock prices largely depend upon and fluctuate sharply to the changes in any economic, financial or political events and news. Scholars also argue that the prices of the individual shares change due to lots of shocks transmitted by several expected and unexpected financial, micro and macro-economic variables shaped by the economic policy measures. Again, the impacts of the variables in the formation of prices are not equal. The influence may be immediate or gradual in nature. Till date, studies have yielded no conclusive answers on which events influence all the assets. Moreover, the influence or the relationship varies across the economies, specially in developing and underdeveloped economies. India after gaining independence has experimented with two distinctly different economic philosophies and implemented several policy measures by several rules, regulations and acts. The economic policy measures are expected to influence micro, macroeconomic and financial variables which in turn are expected to be mirrored by capital market. But, our knowledge about asset market behaviour is still unclear. Scholars found that

the relation between stock market and the macroeconomic variables is not entirely in one direction. Theories fail to provide a definite answer about which variables influence stock prices' and the directions of the influence, if any. This study also attempted to seek the answer considering Indian economy over a period of 54 years (1966-2019) —the colourful journey of transformation of the economy from agriculture to services, from nationalisation to privatisation, from basic survival to global goals. The result is unlikely to change but is important in the sense that it may help individual or institutional fund managers to estimate, monitor and manage financial risk, price derivatives and find more clear solutions to the problem of optimal portfolio solution. From the policy planners, it may help to develop a better understanding of the potential macroeconomic determinants of systematic financial risk.

Note: 1. According to Panagariya (2021), India remained agricultural with 66 percent of the work force trapped in that sector till 1987-88.

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