Chapter 2

Theory and Literature Review

2.1 Theory

This section of chapter 2 is divided into two main parts: the theoretical relationship between stock market development and economic growth: and the theoretical relationship between stock market development and income distribution.

2.1.1 The theoretical relationship between stock market development and economic growth

According to Capasso (2006), there are three stages of the relationship between stock market development and economic growth. In the early stages of economic development, financial markets are developed at only a rudimentary level. Most financial intermediaries are in the form of banks and similar intermediaries. Due to the thinness of capital markets on the supply side, money-lenders, usury, and tied lending from landlords are in evidence. In the second stage with economic growth, capital accumulation allows financial intermediaries to develop both in the number and complexity of the financial contracts offered. The number of listed firms and the total value of market capitalization increase in stock markets. In the third stage, stock markets as well as other kinds of financial intermediaries continue to develop as the economy continues to grow. There is quite likely a two-way synergy between stock market capital acquisition and economic growth.

In addition, equity markets develop non-monotonically. In economies where the market is relatively small, capital accumulation leads to an increase in the share of banks in the financial system. When the market achieves larger size and a more mature structure, the share of equity also increases. In other words, the equity/debt ratio first decreases and then increases with the development of the stock market.

The reason behind this U-shaped pattern of equity growth is explained by Demirguc-Kunt and Maksimovic (1996) as follows: With the expansion of stock markets during the initial stages of economic development, the opportunity for risk sharing and the flow of information in the market increase. As a result, firms have relatively cheap and easy access to bank loans, which permits them to raise their level of leverage (debt: asset ratio). But as stock markets develop further, the costs of issuing equity decrease, leading firms to replace debt with equity.

Resource allocation can be improved by stock markets through many channels:

1. Reduced transaction and liquidity costs lead to increases in the efficiency of capital use, and hence to higher capital productivity. Liquidity created from the stock market may facilitate longer-term, more profitable investments (Neusser and Kugler, 1998, Bencivenga et al., 1996 and Levine, 1996). This in turn should lead to improved capital allocation and enhanced prospects for long-run economic growth. Moreover, the liquidity so generated lowers the costs of foreign capital, especially for low-income countries that lack domestic savings.

2. Resource pooling and saving mobilization increase the rate of investment.

3. *Acquisition of information about firms* has positive impacts on resource allocation, capital productivity, and corporate governance (Bencivenga et. al., 1996 and Levine, 1996).

4. *Corporate control*, whereby stock markets exert control over the firms' management which lead to improvement in investment decisions and returns on investments.

5. *Increases in cross-border flows of capital and financial resources of all types*. These lead to higher levels of portfolio and risk diversification, increasing the propensities to save and invest (Obstfeld, 1994 and Devereaux and Smith, 1994).

No matter which model of growth one ascribes to (Harrod-Domar, Solow, or Kuznets), the final result is higher economic growth.

2.1.2 The theoretical relationship between stock market development and income distribution

In general, theories concur that in the long run, development of the financial sector leads to improved income equality. However, for stock market development, the contrary is true.

Two main theories have been advanced to explain the correlation between financial development and income inequality (Liang, 2008). The first is Greenwood and Jovanovic's U-shaped relationship between financial market development and income equality. During the early stage of financial development, income equality tends to decrease due to inaccessibility of some households in the economy to the financial services. However, as the sector further developed, equality rises as average income rises, and more households gain access to the services. The other theory states

that stock market development has linear and positive impact on income equality. In other words, financial market development and financial intermediation lead to reduction in inequality.

Meanwhile, even though some empirical studies confirm the positive long-term impact of stock market development on income equality, many others conclude the contrary (See details in *2.2.2*). The negative impact concluded by the latter group of empirical studies is consistent with some real-world evidences economists have noted. For example, during the Dot-com bubble in the U.S in the late 2000s, the transition from industrial economy to technology and finance economy coexisted with rising inequality in the country (UNRISD, 2010). During the period, capital asset valuations of small group of rich people rose dramatically. From total income inequality, half of it would not exist if the data of top 5 rich counties which are in New York, California, and Washington D.C. are removed. Moreover, all of the inter-county inequality would be neutralized if income of 15 countries is removed. This may be because financialization, the process of increasing financial sector in the economy which is related to the neoliberal economic policy reform gaining strength in 1980s-1990s, tends to favour national financial and political centres (UNRISD, 2010). Additionally, during financial crisis or implementation of stabilization policy—e.g. Brazil's Real Plan, falling share of financial sector in the economy often coexists with fall in inequality (UNRISD, 2010). Jacob Hacker, a Yale political scientist, once stated that income inequality tends to fall during recessions due to the loss of income by wealthier people from their stock investments (Lowrey, 2010).

There are two main reasons explaining why stock market development worsens income equality.

1. *Stock market benefits the enterprises in the economy unequally*: the benefits from the stock markets mainly fall onto large firms (Aggarwal and Goodell, 2009). In many developing countries, barriers to entry erected by insiders constrain some firms from accesses to funding in the stock markets (Claessens and Perotti, 2007).

2. *Stock market benefits the households in the economy unequally*: micro structure of the stock market where dominant players can lead stock prices away from their intrinsic value allows these players to receive higher benefits than others (Gimet, and Lagoarde-Segot, 2010). Moreover, boom in stock market creates inflation which affects those with fixed income such as elders living on pensions or salary workers who are often the poorer households in the economy. For wealthier households, falling value of money from inflation induces them to relocate their wealth to capital e.g. equities. This is not possible for poorer families since the capital market is not accessible to these households (Sakano, 2004). In the U.S., the majority of younger and poorer households do not hold equities at all (Heer and Sussmuth, 2005).

2.2 Literature Review

The relationship among stock exchange development, economic growth, and income distribution has long been examined. Many studies employ panel data of various country groups—e.g. Enisan and Olufisayo (2009) employ data of 7 sub-Saharan African countries, Mohtadi and Agarwal (2004) employ data of 21 developing countries. Some others employ time-series data—e.g. Zietz and Zhao

(2009) and Smith (1999) employ data of the U.S. Note that none of the studies found uses panel data from ASEAN countries.

Since each previous study focuses either on the impact of stock market on economic growth or on income distribution, the literature review is divided into two parts. The first includes the empirical studies that have examined the relationship between stock market development and economic growth (see *2.2.1*). The second involves studies that have explored the relationship between stock market development and income distribution (see *2.2.2*).

2.2.1 Stock market development and economic growth

The summary of literature reviews on relationship between stock market development and economic growth is presented in *Table 2.1.*

Table 2.1 Summary of literature reviews on relationship between stock market development and economic growth

Robust and/or positive impact of stock market on economic growth				
Authors	**Data**	**Stock market indicators**	**Methodology**	**Results**
Enisan and Olufisayo (2009)	7 sub-Saharan African countries (1980-2004)	MCR and value of shares traded over GDP.	ADRL bounds test, and Granger causality test (VECM)	Unidirectional, positive relations running from stock market development to economic growth in all countries except Nigeria.
Cooray (2010)	35 developing countries (1993-2003)	Market capitalizationand TR	Regressions	Positive and highly significant impact of stock market to economic growth.
Mohtadi and Agarwal (2004)	21 developing countries (1977-1997)	MCR, value of shares traded over GDP, and TR.	Dynamic regressions	Stock market development has contribution to long-run economic growth via direct effect—effect of liquidity on economic growth, and indirect effect—effect of market size on investment which affects economic growth
Choong, Baharumshah, Yusop and Habibullah (2010)	51 countries (19 developed and 32 developing countries) (1988-2002)	MCR, value of shares traded over GDP	Dynamic GMM	The negative impact of private capital flows can be transformed into the positive if the stock market development has reached a certain minimum level. Recipient countries would benefit more from private capital inflows if they had well-developed stock market.
Shen and Lee (2006)	48 countries (25 high-income and 17 middle-income and 6 low-income countries) (1976-2001)	MCR, value of shares traded over GDP, TR	Regressions	Stock market has positive effect on GDP/capita growth. Progress in stock market development in middle-income country, a Latin American, Sub-Saharan African, or East Asian countries facilitates growth.

Table 2.1 Summary of literature reviews on relationship between stock market development and economic growth (continued)

Robust and/or positive impact of stock market on economic growth (continued)				
Authors	**Data**	**Stock market indicators**	**Methodology**	**Results**
Beck and Levine (2004)	40 countries (1976-1998)	MCR, value of shares traded over GDP, TR	Regressions, GMM	Stock market development and bank development jointly enter all of the system panel growth regressions significantly.
Baier, Dwyer and Tamura (2004)				Economic growth increases relative to the rest of the world after the open of stock exchange.
Levine and Zervos (1996)			Regressions	Predetermined component of stock market development is positively and robustly associated with long-run economic growth.
Levine (1996)	38 countries (1976-1993)			Stock market development, on its own, is a strong predictor of the economic growth.
Nieuwer-burgh, Buelens and Cuyvers (2006)	Belgium (1830-2000)	Market capitalization, number of listed shares, number of IPOs.	Cointegration, and Granger causality tests.	The availability of stock market-based financing for firms was an important determinant of economic growth in Belgium.
Weak and/or negative impact of stock market on economic growth				
Authors	**Data**	**Stock market indicators**	**Methodology**	**Results**
Naceur and Ghazoua-ni (2007)	11 MENA countries (1979-2003)	Composite index of stock market development	Dynamic GMM	Stock market development is unimportant or even harmful for economic growth in MENA region.
Durham (2002)	Developed and developing countries (1981-1998)			The effect of stock market on economic growth in developing countries is weak. Higher income countries drive the overall positive relation.

The majority of studies in this group find positive significant impacts of stock market on economic growth in various country groups with variations in level of development. For example: Enisan and Olufisayo (2009) find the positive result employing data from the sub-Saharan African countries: Mohtadi and Agarwal (2004) and Cooray (2010) employ data from developing countries: Nieuwerburgh, Buelens and Cuyvers (2006) employ time series data of Belgium: and Shen and Lee (2006) and Choong, Baharumshah, Yusop and Habibullah (2010) employ the data from both developed and developing countries.

On the contrary, some studies find weak or negative relationships between stock market development and economic growth in developing countries and less-developed ones. Employing the data of both developed and developing countries, Durham (2002) finds that the effect of stock market on economic growth in developing countries is weak—higher income countries drive the overall positive relation. Naceur and Ghazouani (2007) employing the data of Middle East and North Africa (MENA) region find that stock market development is unimportant or even harmful to economic growth.

Indicators of stock market development employed by these studies can be divided into four main groups (see *Table 2.2*).

Table 2.2 Stock market indicators

1. Indicator measuring overall market development	
Composite index of stock market development	Naceur and Ghazouani (2007)
2. Indicators measuring stock market size	
Market capitalization	Nieuwerburgh, Buelens and Cuyvers (2006), and Cooray (2010)
Market capitalization ratio or MCR (market capitalization over GDP)	Enisan and Olufisayo (2009), Mohtadi and Agarwal (2004), Choong, Baharumshah, Yusop and Habibullah (2010), Shen and Lee (2006), and Beck and Levine (2004)
Number of listed shares	Nieuwerburgh, Buelens and Cuyvers (2006)
3. Indicators measuring stock market liquidity	
Value of shares traded over GDP	Enisan and Olufisayo (2009), Choong, Baharumshah, Yusop and Habibullah (2010), Shen and Lee (2006), and Beck and Levine (2004)
Turnover ratio or TR (value of shares traded over market capitalization)	Mohtadi and Agarwal (2004), Shen and Lee (2006), Cooray (2010), and Beck and Levine (2004)
4. Indicator measuring how much stock market assist new entrepreneurial activity	
Number of initial public offerings (IPO)	Nieuwerburgh, Buelens and Cuyvers (2006)

Methodologies employed to test the relationship between stock exchange variables and economic growth are as followed: autoregressive distributed lag (ADRL) bounds test—Enisan and Olufisayo (2009): cointegration test—Nieuwerburgh, Buelens and Cuyvers (2006): dynamic regression and regression—Mohtadi and Agarwal (2004), Shen and Lee (2006), Cooray (2010), Beck and Levine (2004), and Levine and Zervos (1996): dynamic generalized method of moments (GMM) and GMM—Choong, Baharumshah, Yusop and Habibullah (2010), and Beck and Levine (2004). Some of the studies also test causality between stock market variables and economic growth employin Granger causality test—Enisan and Olufisayo (2009), and Nieuwerburgh, Buelens and Cuyvers (2006).

2.2.2 Stock market development and income distribution

The summary of literature reviews on relationship between stock market development and income distribution is presented in *Table 2.3.*

Table 2.3 Summary of literature reviews on relationship between stock market development and income distribution

Stock market development promotes income equality				
Authors	**Data**	**Indicators**	**Methodology**	**Results**
Kappel (2010)	78 developing and developed countries (1960-2006)	MCR, value of shares traded, TR Gini	Regressions	Inequality and poverty is reduced through more developed stock markets.
Mathew (2008)	61 countries (1975-2005)	MCR, value of shares traded, TR Gini	Regressions	In the long-run, stock market development reduces income inequality.
Bonfiglioli (2006)	52 countries (1976-2000)		Dynamic regressions	In the long-run, stock market development reduces income inequality.
Stock market development increases income inequality				
Authors	**Data**	**Indicators**	**Methodology**	**Results**
Das and Mohapatra (2003)	11 countries underwent capital account liberalization (1986-1995)	MCR, value of shares traded over GDP	Regressions	Income share growth is accounted most to the top quintile of the income distribution at the expense of the three middle quintiles. The poorest quintile's income share receives no impact from the liberalization.
Viaene and Zilcha (2002)				Capital markets integration of two similar economies which differ in initial capital stocks only is found to have negative impact on income equality.
Zietz and Zhao (2009)	The U.S. (1980-2000)		Regressions	Incomes of stockholder households rise more from stock market appreciation than non-stockholders households. On average, the stock market appreciation raised the Gini coefficient by about 2% during 1980s and by about 3% during 1990s.

Table 2.3 Summary of literature reviews on relationship between stock market development and income distribution (continued)

Stock market development increases income inequality (continued)				
Authors	**Data**	**Indicators**	**Methodology**	**Results**
Smith (1999)	The U.S. (1984-1994)			Sharp rising inequality in household wealth since 1980s-2000s is explained by uneven receipt within and across income classes of capital gains due to sharp price appreciation in equity markets.
Stock market development causality on income equality				
Authors	**Data**	**Indicators**	**Methodology**	**Results**
Gimet and Lagoarde-Segot (2010)	49 countries (1994-2002)	MCR, TR, proxies of market characteristics	Beysian structural vector autoregressive model	Significant causality running from financial market development to income distribution.
		Estimated household income inequality (EHII)		
Beltratti and Morana (2007)	The U.S. (1920-2001)		Cointegration, Impulse response funtions	Stock market shocks affect the dynamic of income distribution.

Based on their results, the studies of relationship between stock market development and income distribution can be divided into three groups.

The first group of studies finds positive effect of stock market variables on income equality. This group includes Kappel (2010), Mathew (2008), and Bonfiglioli (2006)—all employing data from developed and developing countries.

The second group of studies finds negative impact of stock market development on income equality. This group includes Das and Mohapatra (2003)—employing data from 11 countries underwent capital account liberalization, Zietz and Zhao (2009) and Smith (1999)—both employing data from the U.S.

The last group finds causality running from stock market on income equality. This group includes Gimet and Lagoaarde-Segot (2010)—employing data from developed and developing countries, and Beltratti and Morana (2007)—employing data from the U.S.

Indicators of stock market development are similar to the ones used in the first group of studies (see *Table 2.3*). To measure income distribution, indices of income inequality are employed. Majority of studies employ the widely-known Gini index including Kappel (2010) and Mathew (2008). Nevertheless, Gimet and Lagoarde-Segot (2010) refute the use of Gini index stating some problems related to the index such as un-explained jump in the data, low observation frequency, uses of mixed data types—gross versus net income data, household versus individual income data, and income versus expenditure data. Gimet and Lagoarde-Segot (2010) resorts to uses of less-known estimated income inequality index (EHII) developed by Galbraith and Kum (2003) and updated by Daymon and Gimet (2009) which

combines Gini index with Theil-index based measure of industrial sector's dispersion of pay.

To examine the impact of stock exchange variables on the income inequality index, thd majority of studies employ regressions and dynamic regressions—e.g. Kappel (2010), Mathew (2008), Bonfiglioli (2006), and Das and Mohapatra (2003). Studies examining causality between stock market variable and income inequality index employ Beysian model—Gimet and Lagoarde-Segot (2010)—and impulse response functions—Beltratti and Morana (2007).