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Financial Development and Economic Growth: Does Stock Market Openness Matter?

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FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH: DOES STOCK MARKET OPENNESS MATTER?

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INTRODUCTION

Prior to early works by Schumpeter (1912), Goldsmith (1969), McKinnon (1973) and Shaw (1973), the impact of the financial sector on economic growth was all but ignored. Schumpeter's work asserts that the development of financial intermediaries has a direct effect on the rate of technical change and productivity growth, both of which lead to overall output growth. Financial services are necessary insofar as they improve productivity by encouraging technological innovation. Goldsmith, McKinnon, and Shaw each emphasize the role of capital accumulation in economic growth. The development of financial intermediaries increases capital accumulation and reduces the cost of external financing to firms. It also serves to decrease market friction which increases domestic savings and attracts foreign capital, leading to economic growth. The works of these individuals have served as the building blocks for more recent analyses, which employ a variety of data sets and econometric methodologies to assess both the source and direction of the relationship between the financial sector and economic growth.

King and Levine's (1993) seminal work shows that the level of financial intermediation can accurately predict long run rates of economic growth, capital accumulation and productivity. Others building upon this analysis have considered the effects of stock market development as an additional contributor to growth. Like financial intermediaries, stock market development impacts growth by influencing capital allocation. Gurley and Shaw (1955) first argued that financial markets can extend a borrower's financial capacity and improve the efficiency of trade. In principle, well-developed financial markets increase saving and effectively allocate capital to productive investments, which leads to an increase in the rate of economic growth. Supporters of this theory also stress the ability of large, liquid markets to increase profit incentives, encourage corporate governance, and facilitate risk management and portfolio diversification (see Levine, 2002; Beck and Levine, 2004). Work by Levine (1997) and Levine and Zervos (1998) also indicate that stock markets and financial intermediaries both decrease transaction costs and reduce the costs of acquiring information. Clearly, existing research shows that stock markets have the potential to contribute to and promote economic growth in a variety of ways.

As Arestis and Demitriades (1997) highlight, world stock market capitalization grew $10.5 trillion from the mid 1980's to the mid 1990's. Value Traded for emerging markets also rose from less than 3% of the world total in 1985 to 17% of the world total in 1994. From 2000 to 2009, world stock market capitalization increased by 33% (World Federation of Exchanges). Estimates by the OECD believe that emerging markets will account for nearly 60% of world GDP by the year 2030 (Picerno, 2010). This being the case, research focused on emerging markets will be extremely relevant going forward. Exhibit 1 depicts these results as confirmed by Goldman Sachs and published in the *Financial Post.*

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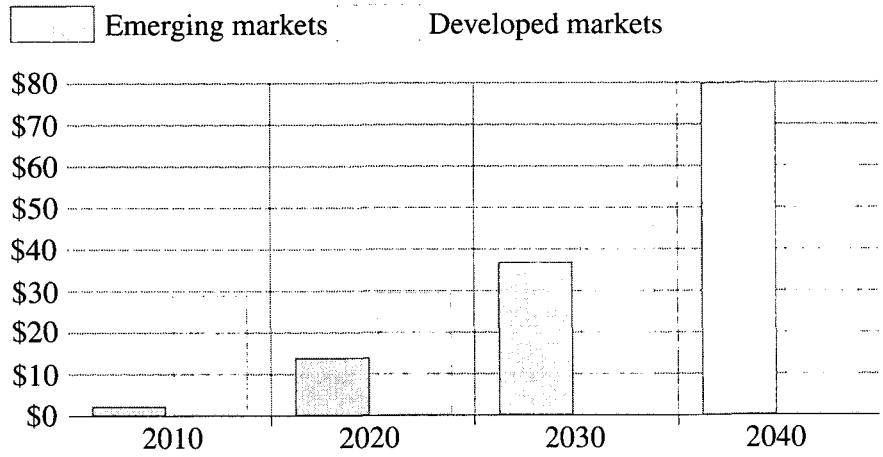
EXHIBIT 1 - Emerging Markets could account for half Global Market Cap in 20 Years.

ESTIMATED GLOBAL MARKET CAP DISTRIBUTION
Total Market Cap in US$ Trillions



Sources: Goldman Sachs, Financial Post

Recognizing the importance of stock markets and the role they can play in the future of emerging economies, this thesis plans to further examine the development of stock markets as a factor affecting economic growth. It attempts to expand upon existing research by taking into consideration not only stock market size and turnover as determinants of economic growth, but also the extent to which respective stock markets are open to non-domestic investors. Existing research has already provided evidence that liberalization of economies and financial markets are potentially significant events that can influence economic growth. Findings of Caporale et al. (2004) reveal that the most efficient allocation of capital is achieved by liberalizing financial markets and letting the market allocate capital. The research presented herein provides some evidence that the degree to which stock markets are open to foreign investors is a more significant factor in contributing to economic growth than simply the size or activity of the stock market itself. This paper therefore contributes to two strands of literature; first, research focusing on the relationship between stock market development and economic growth and second, the studies examining financial market liberalization and economic growth.

The remainder of this paper is organized as follows. Section II summarizes the existing empirical literature focused on financial development, equity market liberalization and economic growth. Section III outlines the methodology and explanatory variables used to measure stock market development and liberalization; it also describes sources of data. Section IV analyzes and discusses relevant results of the regression analysis and finally, conclusions and implications for future research are provided in Section V.

II. LITERATURE REVIEW

The financial development-growth debate is primarily concerned with two things: sources of growth and direction of causality. Which aspects of financial development are the true sources of economic growth? Does financial development promote economic growth or does economic growth stimulate financial development? While support for the existence of a relationship between the two is strong, solid conclusions regarding the sources of growth and the causal direction between finance and growth have not been empirically resolved.

In regards to the sources of growth, Levine (1997) addresses the degree to which markets are bank-based or market-based and finds that banks and markets are complements in providing financial services. Financial intermediaries and markets both decrease transaction costs and reduce the costs of acquiring information. Levine (1997) and Levine and Zervos (1998) conclude that stock markets and banks both contribute to growth by providing unique services. If a country's financial market is composed only of banks, the market will fail to achieve true efficient allocation of capital due to information asymmetries. Additionally, while banks tend to finance only well-established, safe borrowers, stock markets can finance more risky, innovative investments (Caporale et al, 2004).

King and Levine (1993) showed that initial levels of financial development are vital to subsequent growth and, importantly, finance seems to lead growth. This means that the creation of financial institutions influence economic growth by increasing the availability of financial services, encouraging savings, and improving borrowing options. Others, like Rioja and Valev (2004), propose that while the relationship is from financial development to economic growth, the relationship may vary according to a country's existing level of financial development. In sharp contrast, Shan (2005) finds little evidence that financial development leads to economic growth at all. Research in this area is ongoing since a consensus on the direction of causality has yet to be reached.

Besides identifying the sources of growth and their causality patterns, research also focuses on a third question: Why, if financial development is good for growth, do so many countries remain financially underdeveloped? While some countries have developed functioning financial markets and institutions, others have not. As McKinnon (1973), Shaw (1973), and more recently Fry (1997) discuss, policies that result in financial repression inhibit growth. Countries whose banks and markets only operate domestically, forgo the enhanced participation of the international community. When a country is open to trade and capital flows from outside its borders, it is more likely to further develop its financial system. Liberalizing restrictions on foreign banks and foreign capital tends to enhance the overall functioning of the domestic financial system. Financial deregulation can also have a negative impact on growth however, and it is usually blamed for the advent of currency crises and large financial booms and busts (Kaminsky and Schmukler, 2003). Despite this, the literature tends to support the claim that financial liberalization does in fact enhance economic growth.

A number of recent studies support financial liberalization for several reasons. First, allowing for the presence of foreign banks fosters competition and encourages increased regulation. Openness to foreign banks may also improve the quality, pricing and availability of banking services. As Levine (2001) notes, liberalization in this area decreases the costs of acquiring information, enforcing contracts and making transactions, thereby increasing the efficiency of the domestic banking system.

Second, liberalization of a country's domestic stock market has several implications for growth. Foreign investors seeking benefits of international diversification will help to drive up local equity prices thus reducing the cost of capital (Bekaert and Harvey, 2000). Empirical studies by both Bekaert and Harvey (2000) and Henry (2000a) provide evidence that the cost of capital decreases following liberalization. Stock market liberalization also enhances financial productivity by increasing liquidity. Levine and Zervos (1998b) examine the effect of capital control liberalization on stock market liquidity in fifteen emerging market economies. Liquidity, measured as total value traded divided by GDP, quantifies the level of trading relative to the size of the market. Their results indicate that stock markets became more liquid after restrictions on international portfolio flows were liberalized for 14 out of 15 countries observed.

As many can attest, it is difficult to accurately identify the exact date of liberalization for emerging equity markets (See Bekaert and Harvey, 2000; Henry, 2000a; Kim and Singal, 2000). Many actions can be considered "liberalizing" including the relaxation of currency controls, reduction of foreign ownership restrictions and/or the introduction of a country fund. It is also important to realize that this methodology may detract from results since deregulation cannot be pinpointed to one single date. Liberalization occurs over time and its effects happen slowly.

Table 1 below summarizes chosen liberalization dates by author for a number of countries in the data set.

TABLE 1. Liberalization Dates used by select authors.

	Henry (2000a)	Bekaert and Harvey (2000)	Kim and Singal (2000)	Levine and Zervos (1998)
Jordan		Dec-95	Jan-78	Jan-87
Turkey		Aug-89	Aug-89	
Argentina	Nov-89	Nov-89	Nov-89	Nov-80
Brazil	Mar-88	May-91	May-91	Jun-90
Chile	May-87	Jan-92	Oct-89	Jan-88
India	Jun-86	Nov-92	Nov-92	May-90
Indonesia		Sep-89	Sep-89	
Korea, Rep	Jun-87	Jan-92	Jan-92	Aug-81/Feb-92
Malaysia	May-87	Dec-88		Nov-86
Philippines	May-86	Jun-91	Mar-86	1988
Taiwan	May-86	Jan-91	Jan-91	Feb-91
Thailand	Jan-88	Sep-87	Aug-88	1988

Bekaert and Harvey (2000) emphasize the gradual nature of equity market liberalization and use three different indicators to confirm their liberalization dates: the introduction of American Depository Receipts (ADRs) and other country funds, the lifting of investment restrictions for foreign investors, and the extent of U.S. capital flows into the emerging country's equity market. Similarly, Kim and Singal (2000) use various sources to confirm their choice of liberalization dates, many of which are in agreement with Bekaert and Harvey. Henry (2000a) defines stock market liberalization as the first verifiable occurrence of any of the following: liberalization by policy decree, establishment of the first country fund or at least a ten percent increase in the country's respective investability index. This index is mea-

sured as the ratio of the Standard & Poor's/IFC Investable Total Return Index (IFCI) to the S&P/IFC Global Total Return Index (IFCG). The S&P IFCI Index is comprised of firms that non-domestic investors can reasonably invest in. In contrast, the S&P IFCG Index represents the performance of the most active firms in their respective market and is the broadest possible indicator of total market movements.

The objective of this study is to examine whether the degree of stock market liberalization promotes economic growth amongst a sample of nineteen emerging markets from 1999-2006. Previous studies employ conventional growth models using variables that measure the effects of two distinct sectors of financial development: equity markets and the banking sector. This study seeks to expand upon existing research by focusing only on the role that stock markets play in achieving economic growth and how liberalization therein may further that goal.

III. DATA AND METHODOLOGY

Data and Sources

The ratio of the S&P IFCI to S&P IFCG was first used by Henry (2000a) to identify dates of stock market liberalization. An increase in this investability index of at least ten percent signified that liberalization had taken place. Building off of Henry, this paper seeks to use this investability index, referred to herein as "OPEN," as a measure of the magnitude of stock market openness rather than as a way to identify and use dates of liberalization. Unlike Levine and others, this measure will allow for the consideration of an additional dimension of a country's stock market; namely, how open it is to foreign investor participation. This is significant since increased participation of foreigners in local emerging stock markets can act as a substantial catalyst for change. Kim and Singal (2000), for example, cite the potential monitoring role foreign investors can play, which can in turn exert discipline on domestic managers to run their enterprises more efficiently. Foreign investors will also demand minority shareholder protections and more effective regulatory oversight. Such changes can accelerate the effectiveness of financial markets and foster an economic environment that is more conducive to growth.

The S&P IFCG Composite Index currently includes 33 markets while the S&P IFCI Index covers only 22. Since both indices are needed to compute the openness ratio in question, the sample was limited to these 22 countries. Due to additional data constraints, particularly for the human capital control variable, the resulting data set was further limited. The final sample studied includes 19 of the 22 countries for which data exists in both the IFCG and IFCI Indices and where human capital data was widely available. Countries in the final sample include Argentina, Brazil, Chile, Czech Republic, Egypt, Hungary, India, Indonesia, Israel, Republic of Korea, Malaysia, Morocco, Peru, Philippines, Poland, Russia, Taiwan, Thailand, and Turkey.

In keeping with previous studies, proxies for stock market size and liquidity are also employed in the model. Following Levine and Zervos (1998), size is measured as market capitalization (total value of listed shares) divided by GDP. Although a larger market may not necessarily function better than a smaller one, numerous authors have used this proxy under the assumption that stock market size correlates positively with the ability to mobilize capital and diversify risk. Empirical results relating to this variable however, indicate that market size

is not a significant contributor to economic growth (see Levine and Zervos, 1998; Rousseau and Wachtel, 2000).

For liquidity, a ratio of value traded to market capitalization is used. Also following Levine and Zervos (1998), this ratio examines trading value as a share of the total value of all listed shares. Termed the *turnover ratio,* this is not a direct measure of market turnover but follows the belief that high turnover results in low transaction costs. Liquidity measures of stock market development have been shown to be both positively and significantly related to economic growth.

The final sample, therefore, contains 19 countries for the period 1999-2006 and includes a total of 129 observations. Variables used in the regression analysis are defined in Table 2.

TABLE 2. Description of Independent Variables

Variable	Description
OPEN	Measure of stock market openness; the ratio of S&P IFCI Total Return Index to S&P IFCG Total Return Index
VT	Measure of Market Turnover; Value Traded divided by Market Capitalization
MC	Measure of Market Size; Market Capitalization divided by GDP
HC	Measure of Human Capital; Natural log of average total years of schooling
CAPFORM	Measure of Capital Formation; Gross Fixed Capital Formation (% of GDP)

Table 3 presents cumulative descriptive statistics for all variables used. The mean GDP per capita growth rate for all countries studied is 8.2859%. The average OPEN value for all countries was 0.6384 indicating that the emerging markets under consideration are still substantially closed to foreign investors.

TABLE 3. Cumulative Descriptive Statistics for Variables in Regression Analysis.

	Mean	Median	Max	Min	Std Dev
LNGDPPC	8.2859	8.4027	9.9367	6.1159	0.9306
OPEN	0.6384	0.6472	1.4510	0.0515	0.3967
VT	0.6244	0.3516	6.2223	0.0131	0.8307
MC	0.5214	0.3798	1.8402	0.1476	0.3702
HC	13.0764	13.3059	16.5179	7.9570	2.0844
CAPFORM	2.5571	2.5882	2.8044	2.0741	0.1698

Table 4 reveals country specific descriptive statistics for the data set used. While Hungary had the largest average OPEN variable (1.43), it only maintained an average GDP per capita growth rate of 8.89%. Israel, with the largest average GDP per capita of 9.84% had an average OPEN variable of only 0.9917. Chile's average OPEN variable was the smallest (0.1611) indicating virtually no openness, but the country still had an average GDP per capita growth rate of 8.63%; seventh in the nineteen country sample.

TABLE 4. Mean Values for Variables by Country

	LNGDPPC	OPEN	VT	MC	HC	CAPFORM	No. of Obs.	
ARGENTINA	8.5112	0.5614	0.1031	0.5069	2.7240	16.5867		7
BRAZIL	8.0930	0.8812	0.3517	0.3559	2.6608	16.2082		6
CHILE	8.6342	0.1611	0.1064	1.0507	2.5993	20.4183		7
CZ. REP.	9.0287	1.1202	0.5633	0.2430	2.6727	26.5770		8
EGYPT	7.0495	0.5937	0.1806	0.3944	2.4136	17.8399		3
HUNGARY	8.8907	1.4277	0.6547	0.2698	2.6957	22.6748		8
INDIA	6.3189	0.2090	1.6675	0.3771	2.1972	25.7079		6
INDONESIA	7.0233	0.9950	0.3946	0.2483	2.4548	21.4713		6
ISRAEL	9.8419	0.9917	0.5366	0.7472	2.7301	19.0187		8
KOREA, REP	9.4952	0.1996	2.6909	0.6690	2.7753	29.1437		8
MALAYSIA	8.4073	0.8312	0.3003	1.5037	2.5114	22.5536		8
MOROCCO	8.8277	0.2961	0.2592	0.2590	2.5305	20.1602		8
PERU	7.3612	0.6696	0.1258	0.4130	2.2252	26.0271		8
PHILLIPPINES	7.8158	0.8564	0.0659	0.3485	2.6049	18.2409		6
POLAND	6.9491	0.0556	0.1629	0.4759	2.4489	16.5711		7
RUSSIA	8.6711	1.0001	0.3105	0.2384	2.7172	20.2170		8
TAIWAN	8.4756	0.2387	0.3435	0.8642	2.6072	18.2246		3
THAILAND	7.7600	0.2809	0.8875	0.6004	2.4736	25.4632		6
TURKEY	8.4234	0.3483	1.5790	0.3653	2.3989	19.0835		8
						Total No. of Observations.		**129**

Data for the IFCI and IFCG Total Return Indices, Value Traded, Market Capitalization and annual GDP were taken from Standard & Poor's Global Stock Markets Factbook. Human Capital, proxied by Average Years of Schooling (School Life Expectancy; Primary to Tertiary), was obtained from the UNESCO Institute for Statistics, and GDP per capita and Gross Fixed Capital Formation (CAPFORM) data was gathered from the World Bank's World Development Indicators (WDI) Database.

Estimation Methodology

The impacts of stock market openness, liquidity and size across countries and time are examined using a two-way fixed effects model for panel data (see, for example, Green, 2000). This model allows for combined analysis of both cross-sectional and time series records. According to Green (2000), this methodology assumes that differences across units can be captured in differences in the model's constant terms. This method has an advantage in that it controls for unobserved heterogeneity (omitted country specific factors that may vary across countries including legal system, political stability, etc.) as well as for time effects that are common to all countries. This serves to mitigate the effects of eventual measurement error when working with panel data.

To investigate whether the degree of stock market openness impacts economic growth, the following model is used:

$$\mathbf{LNGDPPC} = \alpha + \mu_i + \delta_i + \beta_1 \mathbf{OPEN}_{it} + \beta_2 \mathbf{VT}_{it} + \beta_3 \mathbf{MC}_{it} + \beta_4 \mathbf{HC}_{it} + \beta_5 \mathbf{CAPFORM}_{it} + \in$$

where

LNGDPPC = Economic Growth; Natural log of GDP per capita
$OPEN_{it}$ = Market Openness for country i in year t ; the ratio of S&P IFCI Total Return Index to S&P IFCG Total Return Index
VT_{it} = Market Turnover for country i in year t; Value Traded divided by Market Capitalization
MC_{it} = Market Size for country i in year t; Market Capitalization divided by GDP
HC_{it} = Human Capital for country i in year t; Natural log of average total years of schooling
$CAPFORM_{it}$ = Capital Formation for country i in year t; Gross Fixed Capital Formation (as a % of GDP)
μ_i = Country Specific regression intercept
δ_i = Time Specific regression intercept
α = Overall regression intercept

Based on existing empirical studies, a positive relationship is expected for all independent variables. Regarding the variable OPEN, Bekaert and Harvey (2000) and Henry (2000a, 2000b) provide evidence that, following major regulatory reforms, cost of capital decreases and investment increases, resulting in increased economic growth. Bekaert, Harvey and Lundblad (2005) and Naceur and Omran (2008) highlight that stock market liberalizations promote economic growth particularly in countries with more developed financial markets and higher quality institutions. Market openness (OPEN) should therefore be a positive contributor to economic growth.

Market liquidity as measured by the turnover ratio (VT) is also expected to achieve a positive coefficient. A country may have a large stock market in terms of size but this does not mean that the market is actively traded. Levine and Zervos (1998) view increased liquidity as a greater ability to trade ownership of an economy's productive technologies. This facilitates more efficient resource allocation and physical capital formation which induces faster economic growth. Liquid equity markets make investment less risky and more attractive since it allows investors to acquire assets (equity) and sell them quickly if necessary (Levine, 1996). Beck and Levine (2004) also point out the importance of liquidity in reducing disincentives to long-run investment and increasing the efficiency of resource allocation. Increased liquidity is also important since it can restore investor confidence in the value of information associated with trading which further encourages investment (Rousseau and Wachtel, 2000).

Increased stock market capitalization is believed to improve an economy's ability to mobilize capital and diversify risk, thus inducing growth (Arestis and Demitriades, 1997). Empirical results however, do not largely support this hypothesis. Studies examining market size consistently find that it is not a robust predictor of economic growth. Levine and Zervos (1998) find that while some regressions reveal a positive association between market capitalization and output growth, this relationship was strongly influenced by only a few countries in their sample. Levine (1996) concludes that it is not the size of the market that matters but the ease with which shares can be traded. Both Levine and Zervos (1998) and Rousseau and Wachtel (2000) also conclude that market size is less significantly related to growth than liquidity factors. Results of this study may support or contradict these findings.

Control variables for human capital and capital formation are also expected to reveal a positive relationship. With origins in the neoclassical Solow growth model, continuing re-

search emphasizes the role of human capital in economic growth. As Barro (1991) highlights, human capital plays a significant role in a number of endogenous economic growth models. Human capital is viewed as the key input to the research sector which is responsible for generating new ideas and encouraging technological progress. Economies with greater human capital experience a more rapid rate of introduction of new products and services and therefore grow faster. A larger stock of human capital also makes it possible for a country to absorb and build upon new ideas that originated elsewhere (see Barro, 1991, pg 409). Proxies for human capital, including average years of schooling and literacy rate, measure a country's level of educational attainment and infer the country's ability to contribute to the research sector. These proxies are used in the Finance – Growth literature and are found to be positively and significantly associated with economic growth (see Levine and Zervos, 1998; Beck and Levine, 2004; Bekaert, Harvey and Lundblad, 2005). Earlier studies also use Capital Formation as a control variable (Beck, Levine and Loyaza, 2000).

IV. EMPIRICAL RESULTS

Using regression analysis, results regarding market openness as proxied by the IFCI/IFCG index ratio, are encouraging. Table 5 displays results for four prominent regression specifications. In all four model specifications, economic growth is estimated to be positively impacted by the degree of stock market openness. The estimated coefficient for each variable is displayed along with its corresponding t-statistic (in parentheses). OPEN is a positive and significant contributor to economic growth in three of the four specifications.

Specification (1) shows the results of the basic model. Here, OPEN is positively related to economic growth and is marginally significant (t-statistic = 1.59, p-value = .12). Specifications (2), (3) and (4) extend the basic model to include interaction terms. Both MC (a measure of market size) and VT (a measure of market turnover) were identified in the literature as potentially significant measures of financial development when examining determinants of economic growth. This paper questions whether these variables, on their own, are enough for a complete assessment. Here, interaction terms are considered since it is believed that the relationships between MC (and VT) and economic growth may be related to how open the market is. Since MC and VT are hypothesized to be positively related to economic growth on their own, the interaction terms OPMC and OPVT are also believed to have a positive relationship to economic growth. In short, it is expected that MC and VT will be more positive contributors to economic growth the more open the market is. Contrary to expectations, estimated coefficients for both interaction terms (OPMC and OPVT) were found to be statistically insignificant.

In specifications (2), (3) and (4), the variable OPEN becomes statistically significant at better than the ten percent level. For each model respectively, the estimated coefficients on the OPEN variable are 1.7405, 1.7337, and 1.8496. Assuming a country were to completely open its stock market after being completely closed (OPEN = 0 to OPEN = 1), these coefficients indicate the percent contributed to per capita GDP growth as a result of opening the market. Even small increases in the OPEN ratio would exert positive influence on economic growth. Using model (2) as an example: a country whose initial OPEN variable is only .25 would reap one quarter the benefit of the OPEN coefficient (1.7405 * .25) or a .4351 percent addition to its GDP per capita. Further increasing market openness to .75 would contribute 75 percent of the coefficient (1.7405 * .75); a 1.3054 percent addition to GDP per capita. These

results clearly show the added benefit of opening a country's stock market to foreign investors.

Some results regarding MC and VT are consistent with existing literature. Previous research concluded that while liquidity (as measured by the turnover ratio) is positively correlated with economic growth, market size is insignificant (Levine and Zervos, 1998). Arestis, Demitriades, and Luintel (2001) also highlight empirical evidence from cross-sectional studies that find liquidity-based measures of stock market development to be more closely linked to economic growth than market capitalization measures. Tang (2006) further reinforces this and finds that market capitalization as a proxy of market size is only significantly positive for the developed countries in his sample. This paper adds credence to these results by finding that market size is not significant in any of the four specifications in this study.

Contrary to findings regarding turnover (VT) however, all results of this regression analysis indicate that the market turnover ratio is also insignificant to the model. At times, the estimated coefficient of this variable is even negative but it is not different from zero in a statistical sense. These results may be due to this study's sample size and should be examined more fully in future research.

As expected, in all specifications Human Capital (HC) is positively related to economic growth and is significant at better than the 1% level. Human capital, as measured by average years of schooling, is obviously an extremely important consideration in encouraging economic growth. For every one year increase in a developing country's average years of schooling, human capital contributes a maximum of 1.9159 percent and a minimum of 1.5759 percentage change in per capita GDP. Countries should continue to utilize resources in pursuit of formal education and other educational resources to improve upon their available human capital.

TABLE 5. Estimated Coefficients and P-values for Selected Models in Regression Analysis.

Variable	Estimated Coefficient			
	(1)	(2)	(3)	(4)
Intercept	3.9064	4.2103	4.4615	4.3772
	(2.49)	(2.67)	(2.87)	(2.82)
OPEN	1.5973	1.7405	1.7337	1.8496
	(1.59)	(1.73)[a]	(1.72)[a]	(1.83)[a]
VT	-0.0483	-0.0354	-0.0278	0.0195
	(-1.28)	(-0.90)	(-0.73)	(0.36)
MC	-0.1495	0.0419	0.0567	0.0516
	(-1.23)	(0.22)	(0.29)	(0.27)
HC	1.9159	1.7678	1.5759	1.6074
	(3.07)[c]	(2.79)[c]	(2.63)[c]	(2.68)[c]
CAPFORM	-0.0087	-0.00996		
	(-0.83)	(-0.95)		
OPMC		-0.0381	-0.3541	-0.3476
		(-1.27)	(-1.18)	(-1.16)
OPVT				-0.1854
				(-1.23)
R-Sq	.9758	.9762	.9760	.9764
No. of Obv	129	129	129	129

Corresponding values of the t-statistic are presented in parentheses below each estimated coefficient. *a*, *b* and *c* indicate significance at better than the 10, 5 and 1 percent levels, respectively.

CONCLUSIONS

Research in this field remains ongoing due to conflicting results, methodological shortcomings, and a lack of data availability, especially for developing countries. Debate also exists regarding financial development and liberalization measurements used. It is difficult to construct precise, reliable measures of financial development that apply to a broad range of countries. Despite the acknowledged weaknesses of present work and a need for additional research, results of existing empirical studies remain relatively consistent and show that finance does indeed play an important role in the process of economic growth.

Many papers have examined the determinants of economic growth. Recognizing that the existing literature omits the impact of market openness on economic growth, this paper sets out to fill the gap. It is not enough for capital markets to exist in emerging market economies – market liberalization is crucial to allow for the participation of foreign investors and for local investors to diversify their portfolios across borders.

While existing literature utilizes liberalization dates (see Henry, 2000a; Bekaert and Harvey, 2000; Kim and Singal, 2000; Levine and Zervos, 1998), none have examined the magnitude of market openness and its effects on economic growth in this way. This paper introduces an alternative examination of the impact of stock market liberalization using a two-way fixed effects analysis for panel data. The magnitude of stock market openness (OPEN), measured by the ratio of the S&P/IFC Investable index to the S&P/IFC Global index, is an important addition to existing research in this field. Empirical results reveal that when the degree of market openness is measured in this way, there is a positive and significant impact on economic growth in three of the four specifications tested. Up to 1.8496 percent may be added to GDP per capita growth when a country opens its stock market (OPEN = 0 to OPEN = 1). These results indicate that the degree of a stock market's openness to foreign investors is an extremely important component in the finance-growth debate. With regards to market size and liquidity, results of this study both confirmed and contradicted previous research. Consistent with previous studies, stock market size is not a significant contributor to growth. However, market liquidity was not shown to be a significant factor related to growth.

Results of this study may have important implications for financial policy makers going forward. Total net financial flows to developing economies are estimated to be $385.1 billion in 2011 (United Nations, 2011). Both emerging and frontier markets serve to benefit greatly by opening themselves to these investments. Poland is classified by the S&P as an "emerging" market; one that has progressively developed and enhanced its regulatory environment. Ludwik Sobolewski, president of the Warsaw Stock Exchange (WSE), seeks to become "a regional exchange which lures foreign firms and foreign brands." As of April 2011, 46 percent of capital on the WSE came from foreign investors and Sobolewski aims to increase this amount by about 10% (Adekoya, 2011).

In addition to increasing investor participation, stock market liberalization is believed to induce other important market changes that will encourage and promote growth. Foreign investors are likely to demand increased transparency and shareholder protections. This serves to increase market efficiency, enhance corporate governance and improve market

regulations. The Iraq Stock Exchange (ISX) for example, is a frontier market emerging from the rubble of war. While the exchange was only incorporated and opened for trading in 2004, the recent formation of Iraq's new government is improving investor confidence in the exchange and foreign investor participation is increasing. As a result of this, total market value of listed shares is expected to surpass $3 billion this year (Reuters, 2011). To continue to strengthen the market in response to increased participation, the Iraqi government has created an exchange commission which has already fined companies for non-disclosure and other violations (Michaels, 2008).

The literature has overlooked the degree of market openness as a contributor to economic growth. This paper brings a new dimension to the finance-growth debate by adding this component to existing analysis. There are unlimited possibilities for continued research related to the openness of stock markets. Future research should seek a more consistent methodology, unified variables, and the incorporation of post-liberalization data to broaden the scope of this analysis. The growth potential of emerging markets is an important topic and a fruitful area for continued future research.

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