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Volume 44, 2012 - [Issue 27](#)

1,524 51

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# A re-examination of financial development, stock markets development and economic growth

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Pages 3479-3489 | Published online: 17 Jun 2011

 Cite this article  <https://doi.org/10.1080/00036846.2011.577019>

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## Abstract

This study provides new evidence on the role of financial development and stock market development in accounting for economic growth across geographic regions and income groups. To derive feasible policy implications, we estimate not only unbalanced panel regressions with period fixed effects, but also variance decompositions of annual Gross Domestic Product (GDP) growth rates to examine what proxy measures are most important in economic growth over time and how much they contribute to economic growth. We find distinct direction, timing and strength of the causal links between financial development, stock market development and economic growth based on the results of Granger causality tests. Therefore, it may be necessary to make different efforts to achieve steady economic growth across geographic regions and income groups.

Keywords:

financial development

stock market development

economic growth

panel regression

Granger causality tests

JEL Classification::

G21

O16

C33

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## Acknowledgements

The present research was conducted by the research fund of Dankook University in 2010.

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## Notes

Jung-Suk Yu is ‘the first author’ of this article.

<sup>1</sup> Ang ([2008](#)) provides a nice survey of the literature on financial development and economic growth.

<sup>2</sup> Omitting stock market development makes it difficult to assess whether (1) the positive relationship between bank development and growth holds when controlling for stock market development, (2) banks and markets each have an independent impact on economic growth or (3) overall financial development matters for growth but it is difficult to identify the separate impact of stock markets and banks on economic success (Beck and Levine, [2004](#)).

<sup>3</sup> The World Bank only categorizes geographic regions for low- and middle-income countries and high-income countries are not included in classification by geographic regions. Therefore, each geographic region has the homogeneity in the level of financial development, stock market development and economic growth to some degree.

<sup>4</sup> Levine ([1997](#)) and Khan and Senhadji ([2000](#)) survey a large amount of empirical research that deals with the relation between the financial sector and long-run growth.

<sup>5</sup> They find that stock markets and banks positively influence economic growth using a panel dataset for the period of 1976 to 1998 and applying Generalized Method of Moments (GMM) techniques for dynamic panels.

<sup>6</sup> According to 2009 Gross National Income (GNI) per capita, the four income groups are divided into low income (\$995 or less), lower middle income (\$996–3945), upper middle income (\$3946–12 195) and high income (\$12 196 or more) based on World Bank classification.

<sup>7</sup> Despite the well-known shortcomings coming from aggregations, we believe that our approach to construct panel dataset, based on geographic regions and income groups, has several advantages to provide useful policy implications compared to previous literature on cross-sectional studies including many numbers of heterogeneous countries. In addition, if we use 5-year averages, rather than using annual data, to abstract from business cycle, our 29-year sample period (1980 to 2009) only provides six time-series. Therefore, it is very difficult to perform multivariate time-series analysis to examine the causality between finance and growth due to the small degree of freedom.

<sup>8</sup> Some of proxy measures for financial development incorporate information from banks and other financial intermediaries in addition to loan markets. We also take into account stock market capitalization and the value of the trades of domestic shares on domestic exchanges to capture the development of the stock markets and to deal with the differences in the financial systems of the bank-based ('German-Japanese') and market-based ('Anglo-Saxon') countries.

<sup>9</sup> We use the entire panel to run dynamic panel regression in Equation [1](#). More specifically, the panel dataset includes the seven cross-sectional geographic regions and the time periods of proxy measures from 1980 to 2009.

<sup>10</sup> Innovations,  $e(t)$ , are defined as  $e(t) = Y(t) - P Y(t)$  where  $P$  denotes the linear least squares projection of  $Y(t)$  in the space spanned by  $X(t)$ .

<sup>11</sup> To be consistent with the historical correlation pattern of innovations, we introduce a contemporaneous shock in each equation that is equal to the corresponding element in the  $j$ -th column of matrix  $V$  when we introduce one SD shock in the  $j$ -th variable.

<sup>12</sup> Multicollinearity problem reduces as sample size increases from the cross-sectional to the panel dataset. In addition, if multicollinearity would be a serious problem, it is expected to have high  $R^2$  but few significant t ratios in panel least squares regression. However, we find that the estimated parameter values for several proxy measures (e.g. DCBS, DCPS, Gross Domestic Savings (GDS)) are statistically significant, implying that our panel regression could disentangle explanatory variables successfully although we included several financial and stock market development indicators simultaneously like most of existing literature (see King and Levine, [1992](#); Khan and Senhadji, [2000](#); Al-Awad and Harb, [2005](#), among others).

<sup>13</sup> The results of cointegration tests are not shown to conserve the space and are available upon request.

<sup>14</sup> Similarly, GDS shocks explain 14.8585% (12.0161%) of GDPG fluctuations in 10 years (5 years) ahead for VEC model.

<sup>15</sup> Note that the emphasis in Granger causality tests is on short-run relationship because the results of panel regression and cointegration tests strongly imply the presence of long-run linkages between financial development and economic growth.

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## Additional information

### Notes on contributors

Jung-Suk Yu

Jung-Suk Yu is ‘the first author’ of this article.

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[Shaw, Edward S., Financial Deepening in Economic Development, New York, Oxford University Press, 1973, xii + 260 pp. \(\\$7.50 cloth, \\$3.50 paper\)](#)

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