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Measuring relative development level of stock markets: Capacity and effort of countries

Nihal Bayraktar*

Penn State University – Harrisburg, School of Business Administration, 777 W. Harrisburg Pike, Middletown, PA 17057, USA

Abstract

One of the important determinants of economic development is the existence of an effective financial system. Despite widespread need for financial services, the range and depth of financial markets, including stock markets, vary significantly across countries. One question in the literature is how to measure the development level of stock markets across countries for appropriate policy formations. This paper suggests capacity and effort measures of stock market capitalization, which consider country characteristics, as diagnostic tool to assess the gap between the actual level of stock market capitalization and the capacity of countries. It involves a panel study of 104 developing and developed countries for the period of 1990–2012. The analysis can deliver broad guidance for public reforms in countries with various levels of market capitalization. Cross-country comparisons with measures considering country characteristics can give a better idea on the state of financial systems. Consequently, countries can be more accurately categorized based on different problems such as unsustainable expansions or shallow financial markets.

JELS classification: G1; G2; E44

Keywords: Stock market capitalization; Market capitalization capacity; Market capitalization effort

1. Introduction

Effective financial markets are considered to be one of the most important factors for economic development and growth both in developing and developed countries. Firms borrow funds and/or sell equities in these markets to finance their investment activities, which in turn promotes growth. Given the obvious importance of financial markets, the link between financial development and economic development as a whole is extensively investigated in the literature.[1] In this group of studies stock markets attract special attention as an important source of economic growth and development. Well-developed stock markets are considered essential parts of the financial development of countries.[2]

Despite widespread need for financial services, the range and depth of financial markets, including stock markets, vary

* Tel.: +1 240 461 0978.
E-mail address: nxb23@psu.edu.

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[1] King and Levine (1993), De Gregorio and Guidotti (1995), Levine (1997), and Rajan and Zingales (1998) are some examples of the prominent studies, presenting the link between financial development and growth. Some recent papers include Darrat, Elkhal, Benhabib and Spiegel (2000), Graff (2003), and McCallum (2006).

[2] Baumol (1965) is one of the early examples, studying the link between stock markets and economic growth. Some of the empirical papers implying a positive link between growth performance and stock market development are: Levine and Zervos (1996), Levine and Zervos (1998), Rousseau and Wachtel (2000), Bekaert, Havey, and Lundblad (2001), and Beck and Levine (2004).

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significantly across countries. In the literature one of the questions is how to measure the development level of stock markets or other financial markets across countries for appropriate policy formations. The first natural step to understand and compare stock markets is to establish some performance benchmarks and measurements. Measuring performance of stock markets is both theoretically and practically challenging. The share of stock market capitalization in gross domestic product (GDP) is generally interpreted as an easy measure of effort for stock market capitalization and used in some studies as the basis for cross-country comparisons. But such a comparison is more meaningful to establish trends across countries with a similar economic structure and a similar level of income. Countries have different stock market characteristics: while developed countries have well-established stock markets, these markets are relatively new for most developing countries and mostly evolved through the globalization and financial liberalization process in the 1980s and 1990s.[3] The share measure does not consider any hints about the capacity of countries and their effort in the stock market development process.

This paper introduces capacity and effort measures of stock market capitalization as diagnostic tools to assess the gap between the actual level of stock market capitalization and the capacity of countries. While constructing these measures, the paper tries to answer the following questions: What is the capacity of a country's stock market development given their macroeconomic characteristics? What is the level of their effort in this process relative to their capacity?

Each country's characteristics are different, therefore a measure of stock market development that takes into account those country specific characteristics can provide useful information on the development level of stock markets across countries. When cross-country comparisons are based on measures that take into account country specific characteristics, such analyses can give a more accurate picture of the state of financial systems. This in turn helps in the categorization of countries based on the issues of unsustainable expansions (expansion beyond capacity) or shallow financial markets (low financial activities relative to the capacity). In this regard, the aim of the paper is to present a tool that might be helpful in identifying jams that stop further deepening of stock markets if the actual level is lower than the capacity, or ease the risk of overheating in stock markets if the actual level is well beyond the capacity of the country. Consecutively, country classifications allow us to analyze how far countries go in facilitating the deepening of stock markets. The answer is important for both fiscal and monetary policies.

The introduction of alternative measures of the development level of financial markets, including stock markets, has practical importance. Given that financial development has been seen as an essential tool to promote economic efficiency and growth by governments and multinational agencies, such as the World Bank and the International Monetary Fund, a well-defined set of measures of financial development is a must for formulating, implementing, and evaluating policies effectively. The alternative measure of stock market development introduced in this paper can contribute to fulfilling these objectives. The suggested measure can also help to construct a set of performance measures to serve as a useful indicator of relative progress taking into account country specific characteristics. The analysis can provide some guidance for countries with various levels of market capitalization and effort. At this stage, it should be noted that even if market capitalization is an important dimension of financial development for all countries, we do not intend to make country specific advice. Our study focuses on market capitalization performance and delivers broad directions for reforms in different countries, especially in developing ones.

The analyses in this paper are based on a panel dataset from a sample of 58 developing and 46 high-income countries, 30 of which can be classified as developed countries, for the period of 1990–2012. For a robustness check the analyses are repeated for the period of 1990–2007, corresponding to the pre-crisis period of 2008–2009 global economic and financial problems. The empirical methodology used in this paper has already been applied in the public finance literature to estimate the tax effort and capacity of developing and developed countries. For example, Tanzi and Davoodi (1997), Bird, Vazquez, and Torgler (2004), and Le, Moreno-Dodson, and Bayraktar (2012) introduce such methodologies. This empirical methodology requires using regression estimations to construct benchmarks to compare capacity and efforts for market capitalization in different countries. Market capitalization capacity is defined as the predicted value of stock market capitalization which is estimated through panel regression analyses, considering a country's specific macroeconomic, financial, and institutional characteristics. Market capitalization effort refers to an index of the ratio of actual market capitalization to a country's capacity for market capitalization.

The index for stock market capitalization effort and countries' actual market capitalization lets us sort countries into four different groups: (i) low market capitalization, low effort for market capitalization; (ii) high market capitalization, high effort for market capitalization; (iii) low market capitalization, high effort for market capitalization; and (iv) high market capitalization, low effort for market capitalization. The classification is based on whether a country's actual market capitalization is above or below the median value of market capitalization of the countries in our dataset and also whether or not the effort index of a country is above 1. The index is equal to 1 for a country when actual market capitalization is exactly the same as its estimated capacity.

Section 2 gives information on papers focusing on measurement issues of financial development in the literature. Section 3 summarizes trends in market capitalization. Section 4 highlights alternative measures of the market capitalization performance of countries and generates empirical estimations

[3] Some examples of studies focusing on stock markets in developing countries are: Singh (1971), Tirole (1991), El-Erian and Kumar (1995), Narayan et al. (2011), and Udoka and Anyingang (2013).

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