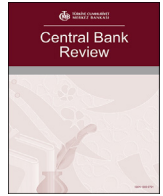


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journal homepage: <http://www.journals.elsevier.com/central-bank-review/>Capital market and economic growth nexus: Evidence from Turkey[☆]Yener Coşkun^{a, *}, Ünal Seven^b, H. Murat Ertuğrul^c, Talat Ulussever^a^a Capital Markets Board of Turkey, Eskisehir Yolu, 06530 Ankara, Turkey^b Central Bank of the Republic of Turkey, Ankara, Turkey^c Undersecretariat of Turkish Treasury, Inonu Bulvari, No.38, Emek, Ankara 06510, Turkey

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ABSTRACT

This study explores the relations between the development level of capital market sub-components, involving mutual/pension funds, corporate bond, stock and government bond markets, and economic growth over the period of 2006:M1 and 2016:M6 in Turkey. We find that there is a long-run cointegrating relationship between capital market development and economic growth and also a unidirectional causality running from capital market development to economic growth. Using ARDL, Markov Switching Regression and Kalman Filter models, we also find that capital market development has asymmetric effects on economic growth where government bond market development is negatively but the aggregated index of other sub-components is positively associated with economic growth.

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1. Introduction

'No man ever steps in the same river twice, for it's not the same river and he's not the same man.'

Heraclitus

Heraclitus is certainly right from philosophical and methodological aspects of stepping in the same river; however, it is confusing to see how some trends show little change in time and result déjà vu perception. For example, there passed more than three decades the words of [Stiglitz \(1985\)](#) suggesting "Keynes, in the *General Theory*, expressed a concern that investors in the stock market were merely concerned with short-term gains, not the

long-term returns. Today, increasingly, similar allegations are brought against the managers of many of America's largest enterprises." After experiencing several stock market crashes with global financial crisis, we possibly still agree with Keynes/Stiglitz. Therefore, expecting strong positive relationship between stock market and economic growth may naively imply high expectations, specifically in developing countries.

In this paper, we develop a novel modeling approach that predicts the nature of the relationship between the development level of capital market sub-components and economic growth in Turkey. Though previous studies mostly focus only on stock market and growth nexus, we investigate the aggregated effect of mutual funds, pension funds, corporate bonds and stock markets on economic growth over the period between 2006:M1 and 2016:M6. To measure the aggregated effect of the sub-components of capital market, we construct a composite index of capital market development by employing principal component analysis (PCA). This study additionally analyzes the relation between the development level of government bond market and economic growth in Turkey. By doing so, we highlight whether significant sub-components of Turkish capital market, namely Borsa Istanbul (henceforward, BIST),

[☆] The views expressed here are of our own and do not necessarily reflect those of our affiliated institutions. All errors are ours.

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Table 1
Overview of selected stock exchanges (2015).

	BIST	NYSE	Korea	NSE	PSE	SSE	Moscow	Saudi	Tehran	Tel-Aviv
DMC (mn USD)	188,862	17,786,787	1,231,200	1,485,088	238,820	4,549,288	393,238	421,060	87,245	243,904
Listed Companies	393	2424	1961	1794	265	1081	254	171	318	461
NCL (unit)	2	55	159	25	4	89	4	n/a	5	2
VST (mn USD)	374,449	17,477,291	1,929,558	676,620	39,683	21,342,843	140,904	436,893	8838	56,443
VBT (mn USD)	194,058	n/a	1,582,409	85,178	n/a	336,904	138,842	121	1073	241,569
IFS (mn USD)	26,1	18,047	3842	5099	111	17,695	508	1108	1	39
IFB (mn USD)	55,055	n/a	539,799	248,889	n/a	n/a	42,520	n/a	n/a	23,094
SIO (NT)	936	n/a	83.317.700	7.370.780	n/a	n/a	32.398	n/a	n/a	n/a
SIF (NT)	166,313	n/a	7,965,730	727,670	n/a	n/a	327,901	n/a	n/a	n/a
IFTT	278	54,480	309	36	19	11,006	2697	n/a	362	n/a
ETFTT	238	232,661	30,556	2229	n/a	22,770	n/a	4	16	n/a

Note: **Names of the Stock Exchange/Country:** BIST; Borsa Istanbul (Turkey), NYSE; New York Stock Exchange (the US), NSE; National Stock Exchange of India, PSE; Philippine Stock Exchange, SSE; Shanghai Stock Exchange (China), Moscow; Moscow Exchange (Russia), Saudi; Saudi Stock Exchange (Tadawul; Saudi Arabia), Tehran; Tehran Stock Exchange (Iran), Tel-Aviv; Tel-Aviv Stock Exchange (Israel). **Abbreviations:** DMC; Domestic market capitalization, NCL; New companies listed (year-end value), VST; Value of share trading (USD millions; year-end value), VBT; Value of bond trading (USD millions; year-end value); IFS; Investment flows channeled through IPO (the values of newly and already issued shares); IFB; Investment flows raised by bonds issuance (USD millions; year-end value), SIO; stock index options (notional turnover), SIF; stock index future (notional turnover), IFTT; investment funds total turnover (year-end value, USD millions), ETFTT; ETFs (total trades, year-end value, in thousands).

Source: World Federation of Exchanges.

provide growth benefit to the Turkish economy. To the best of our knowledge, no previous effort has been made to quantify the aggregated contribution of the capital market sub-components to the economic growth. Therefore, this paper attempts to fill this gap in the empirical literature of finance-growth nexus by asking whether Anglo-Saxon stock market-growth paradigm works in the case of an emerging market, such as Turkey, by also involving capital market sub-sectors other than stock market.

As one of the leading countries in the emerging world, Turkey provides an interesting case study. Because, however the root of the stock market financing went back to the mid-19th century in Turkey, it is perceived like most of the emerging countries that the contribution of the capital markets to economic growth is negligible comparing visible contributions of banks and also non-financial industries. Therefore, we will show in the case of Turkey, whether the benefit of stock market and other capital market sub-components is still negligible from the economic growth perspective despite emerging nature of the analyzed market. As discussed below, the study explores four interconnected research questions by focusing on the link between economic growth and development of the capital market sub-components.

The essential functions of the stock and government bond markets in the Turkish economy are (i) providing alternative financing and investment channels to firms and local/foreign investors, and (ii) injecting seriously needed short term capital market money to the economy (see Kara, 2015).¹ Because these functions are perceived critical for the short-term growth, regulatory framework provides various supporting mechanisms and more importantly Turkish tax code has long provided tax heaven to free movements of capital market money. However, international comparison suggests in Table 1 that Turkish stock market may not fully reflect the dynamism of Turkish economy. For example, while market capitalization of Moscow Exchange and Saudi Stock Exchange are 393 billion USD and 421 billion USD, respectively, market capitalization of BIST is 189 billion USD as of 2015. More interestingly, the values of investment flows channeled through IPO show while BIST created only 26 million USD investment flow

through IPO in 2015, Moscow Exchange, Saudi Stock Exchange, and Tel-Aviv Stock Exchange have created 508 million USD, 1.108 million USD and 39 million USD, respectively. Moreover, financial deepening and liquidity have declined in terms of USD denominated market capitalization and traded values during 2010 and 2015 in BIST (see Table 2). Therefore, as the sub-market level analysis, we first explore whether there is a merit in supportive regulatory framework of Turkish stock market from the economic growth perspective. To this aim, we analyze whether stock market has a significant contribution to the economic growth in Turkey by using market capitalization and stock market total traded value as the measures of stock market development.

The corporate bond market provides an alternative financing channel for firms (specifically banks) in Turkey. As the mostly supply side factor of capital market development, corporate bond market is one of the booming sub-markets in BIST. Analyzing relative changes in the market value of the capital market sub-components suggests that corporate bond market capitalization growth may result relatively higher positive impacts on aggregated market development specifically during 2010:M3 and 2013:M2.² Moreover, the comparison between investment flows raised through IPO and bond issuance in BIST suggests that bond financing is the primary financing mechanism of the Turkish private sector. Corporate bond market capitalization has increased from 0.1 billion Turkish Lira (TL) in 2006 to 5.9 billion TL in 2010, and then to 49.4 billion TL in 2015 (Table 2). Therefore secondly, this study aims to investigate whether capital market financing of Turkish corporations through bond market contributes to economic growth by using the size of the market as a measure of the market development criterion.

In addition, institutional investors play critical demand side role in stock markets; however structural problems may generally limit this role in emerging markets. Although their portfolios heavily involve government bonds, mutual and pension fund markets have showed development in Turkey. In this respect, despite declining in terms of USD since 2012, net asset value of the mutual funds in terms of Turkish Lira has increased 69% between 2006 and 2016. Despite this gradual increase, net asset value of pension funds has

¹ Despite they consist only 1% of the number of investors, foreign portfolio investors hold 63% and 31% of the market capitalization and total traded volume in the Turkish equity market respectively as of September 2016 (TUYID and MKK, 2016:14). Foreign investors also hold about 25%, 26%, 26% and 20% of the market value of the government bond market during the years 2012–2015 respectively (TSPB, 2016:51). Therefore, the functionality of the equity and partially bond markets in Turkey may mostly depend on their decision-makings.

² The market value increase of the capital market sub-components over the period of 2010:M3 and 2013:M2 are in the following; stock market capitalization (45.9%), stock market total traded value (10.5%), corporate bond market capitalization (3301.2%), market value of mutual fund (2.9%) and market value of pension funds (119.2%). This interesting result implies that newly emerging corporate bond market has probably positive impacts to the economic activities in Turkey.

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