



# The influence of stock market development of low income and middle/high income group countries on an increase in economic growth

## La influencia del desarrollo del mercado de valores de los países de bajos ingresos y de los grupos de ingresos medios / altos en un aumento del crecimiento económico

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### Content

- [1. Introduction](#)
  - [2. Theoretical framework and empirical literature](#)
  - [3. Description of the data collection](#)
  - [4. Analysis of results](#)
  - [5. Conclusion](#)
- [References](#)

#### ABSTRACT:

This paper investigates relationship between stock market development and economic growth by taking into consideration 30 low income and 30 middle/high income group countries. For the study, OSL regression is chosen to identify the link between variables. Authors use Stock market total value traded to GDP; Stock market capitalisation to GDP; Stock market turnover ratio as a proxy for stock market development and GDP growth rate as a proxy for economic growth. Authors also analyse results by dividing countries into two income groups and explain some reasons for outliers.

**Keywords:** Financial Market, Share Market, Stock Market, Economic Growth

#### RESUMEN:

Este documento investiga la relación entre el desarrollo del mercado de valores y el crecimiento económico teniendo en cuenta 30 países de bajos ingresos y 30 de grupos de ingresos medios / altos. Para el estudio, se elige la regresión OSL para identificar el vínculo entre las variables. Los autores utilizan el valor total del mercado de valores negociado con el PIB; Capitalización bursátil al PIB; El índice de rotación del mercado de valores como proxy del desarrollo del mercado de valores y la tasa de crecimiento del PIB como proxy del crecimiento económico. Los autores también analizan los resultados dividiendo los países en dos grupos de ingresos y explican algunas razones de los valores atípicos.

**Palabras clave:** Mercado financiero, Mercado de valores, Mercado de valores, Crecimiento económico.

## 1. Introduction

The role of stock market development in the progress of economic growth is not a new issue of debate; early work exists by Schumpeter (1911) and McKinnon (1973). The majority of research on the importance of the worldwide financial markets has identified the relationship between their development and economic growth, highlighting both positive and negative features.

Existing studies revolve around two specific questions: Is there any relationship between the expansion of an economy and equity market development? If there is, what is the form and nature of the relationship? Researchers hold different views on these questions. Some claim stock market

development has a high positive correlation to economic growth (Pagano, 1993; Levine and Zervos, 1996; 1998; Rousseau and Wachel, 2000; Beck and Levine, 2004). Others believe that the stock market has an adverse effect on growth (Stiglitz, 1985; Bencivenga and Smith, 1991; Naceur and Ghazouani 2007). Furthermore, theorists of traditional growth claim that no link exists between the stock market and economic growth, with some claiming that using the stock market as an instrument could harm economic development because of its volatile nature. Meanwhile, other work supports governments in selecting the appropriate economic policy, and reshaping the financial sector to enhance development. For instance, Bahrain attempted to differentiate its economy in order to generate sources of income other than oil output.

To analyse the link between stock markets and economic growth, this study will take into consideration the income group of countries, and the variables required to reflect the situation of the stock market, and will include a brief review of literature on this topic. The third section will present the data consulted for this work, and an assessment and analysis of the results will follow in Section Four. The paper will end with concluding remarks.

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## **2. Theoretical framework and empirical literature**

Empirical literature regarding the financial market and economic growth has evolved progressively over time, witnessing the introduction of a series of new techniques to support various views about the role of the stock market in enhancing economic growth.

Gurley and Shaw (1955) were the first to investigate the link between stock markets and real economic performance. Their work examined the nature of financial systems development in both developed and less developed countries (LDCs). They concluded that developed countries' financial systems are more innovative, and may themselves contribute to economic growth. This conclusion proposed the theory that more developed stock markets might extend a greater number of loans, or credit, to investors to support the growth of their projects.

Another positive relationship between stock markets and economic growth was tested by Atje and Jovanovic (1993), who presented cross-country research of 40 countries in the period 1980 to 1988, and discovered a high correlation between growth and stock market trading, when applying OLS regression to GDP. An almost identical cross-sectional analysis was conducted by King and Levine (1993). In their study of 77 countries in the period 1960 to 1989, a strong link was recorded between initial financial development, and stable growth. Furthermore, Levine and Zervos (1996) applied a pooled cross-country time series regression to 41 countries in the period 1979 to 1993, focussing primarily on the function of stock market development. The results demonstrated a high correlation between long-term economic growth, and stock market development. Findings from yet another work by Levine and Zervos (1998), studying 48 countries between 1976 and 1993, repeatedly demonstrated a statistically high relationship between stock market development, banking development, and sustainable economic growth. The research emphasized that this forecast growth.

Rousseau and Wachtel (2000), and Beck and Levine (2004) indicated that the stock market has a strong correlation with the growth rate of real GDP per capita. Their work discovered that the liquidity of the stock market is a primary stock market variable in justifying economic growth. Nevertheless, a majority of these works are adversely affected by differing statistical or econometric weaknesses. For example, Zhao (1999) did not examine the reverse nature of both variables, and his study of the relationship between stock returns and growth in China from 1993 to 1998, using OLS regression, discovered only that predicted economic growth has a notable influence on the returns of stock.

Filer, Hanousek and Campos (2000) analysed the bridge between the stock market and economic growth in 70 countries in the period 1985 to 1997 by applying the Granger causality test. They discovered a little link between variables, notably for the lower income countries in the sample. Granger causality tests were employed by Carp (2011) in order to investigate the dynamic of the stock market, and the influence of the volatility of international capital inflows, using data for economic growth in Eastern and Central Europe from 2000 to 2007. The study does not demonstrate any impact on growth rates from market capitalization and stock value traded.

Ovat (2012) analysed the Nigerian financial market, using indicators such as stock market size, and stock market liquidity, and concluded that the latter has more impact on growth than market size. A similar study in Kuwait by Bentour (2014) demonstrated that market capitalisation has a significant positive effect on GDP. Wai Mun et al. (2008), studied the economy of Malaysia, and discovered that the stock market has no reverse causation on economic productivity.

Hondroyannis, Lolos and Papapetrou (2005) provided an empirical assessment of the relationship between banking system development, the stock market, and economic productivity in the case of Greece. However, Azarmi, Lazar and Jeyapaul (2007) assessed the same connection in India in the period 1981 to 2001, by applying time series regression. They demonstrated that pre-liberalization was positively related, and post-liberalization time was negatively related, thereby presenting the Indian

stock market in the form of a casino, unsupported by the growth of India.

Rioja and Valev (2014) analysed the impact of the stock market on economic growth in low and high income group countries by applying the dynamic panel Generalized method of moments. They identified that the stock market has no influence on capital accumulation, or growth, in low income group countries, but that it has a considerable positive impact on both capital and productivity growth in high income group countries.

As demonstrated above, while economic findings support a considerable positive connection between the stock market and economic growth, because the stock market is crucial in financing significant projects at a micro and a macro-level for economic development, the evidence of the studies differs from one market to another. The conclusion can therefore be drawn that a causative link between financial market and economic growth exists in some countries, but not in others.

### 3. Description of the data collection

In this study, cross-sectional data was used by consolidating the data for 60 countries. The countries selected are presented in Tables 2 and 3, and are listed by their respective name and income group. Instead of dividing countries equally by income group, i.e. 30 low and 30 high, five low income and 25 low middle income group countries were selected. For the 30 high income countries, 15 upper middle, and 15 high income group countries were used. The reason for this selection was the lack of data availability in the required period of 1970 to 2010. Only one average value is taken for each variable in the given time span.

GDP growth rate was taken as a dependent variable, and the stock market total value traded to GDP; stock market capitalisation to GDP; and stock market turnover ratio, were selected as explanatory variables. All variables in this research were taken from the World Bank (World Development Indicators). In order to measure the stock market development indicators, a set of variables was applied from the next methodologies adopted from King and Levine (1993); Levine and Zervos (1998); Levine, Loayza and Beck (2000); and Seetanah (2008). The variables are presented in Table 1, and are explained below:

**Table 1**  
The variables taken for investigation

Variable	Description	Source
GDP growth rate	GDP growth rate (annual %)	World Development Indicators, The World Bank, 2016 ( <a href="http://data.worldbank.org">http://data.worldbank.org</a> )
Stock to GDP	Stock market total value traded to GDP (%)	
Capitalization to GDP	Stock market capitalization to GDP (%)	
Stock market turnover ratio	Stock market turnover ratio (%)	

**GDP growth rate** is defined as the economic growth measure, which is the annual percentage growth rate at market prices, based on constant local currency.

**Stock market total value traded to GDP** is one of the proxies for stock market development used in this research. It indicates the value of the total number of shares traded, both foreign and domestic, multiplied by their respective matching prices. Stock market total value traded to GDP measures the trading amount as a share of national income, and should therefore positively reflect the influence of liquidity on economic growth. Numbers are individually counted by taking into consideration only one side of transactions. Companies permitted to list, and to trade, are included in the proxy. The data is provided in end-of-year terms.

**Stock market capitalisation to GDP** is known as 'market value', and measures the size of the stock market. It equates to the share price multiplied by the number of shares (including their range of classes) for listed domestic companies. Investment funds, unit trusts, and companies whose only business goal is to retain the shares of other listed companies, are excluded. Proxies are given in terms of end-of-year.

**Stock market turnover ratio** is the value of domestic shares divided by their capitalization of market. The indicator is annualized by multiplying 12 by the monthly average. It is also an indirect measure of theoretical definitions of liquidity, with high turnover usually applied as a low transaction costs indicator.

# 4. Analysis of results

## 4.1. Overall pattern in low and high income group countries

**Table 2**  
Correlation coefficients between GDP growth rate (annual %), Stock market total value traded to GDP (%), Stock market capitalization to GDP (%) and Stock market turnover ratio (%) in Low/ Lower middle income and Upper middle/ High income group countries

```
. correlate GDPg StockGDP CapitalGDP turnover
(obs=60)
```

	GDPg	StockGDP	CapitalGDP	turnover
GDPg	1.0000			
StockGDP	0.5262	1.0000		
CapitalGDP	0.1174	0.5358	1.0000	
turnover	0.2336	0.5464	-0.0542	1.0000

Source: authors' calculation

Depicting the first step of the analysis, Table 2 demonstrates a noticeable positive correlation between financial market indicators and economic growth variables in the 60 low and high income countries in the period studied. Despite a differentiation in the income groups, the variables have a positive correlation. There is a strong relationship between GDP growth rate and the stock market total value traded to GDP, which indicates 0.53. Stock market capitalisation to GDP (0.12), and stock market turnover ratio (0.23), are weakly related to economic growth in 60 countries with mixed income groups.

In the second step of this empirical analysis, the relationship between economic growth and stock market indicators was examined by separating the income groups in two categories: low and high. The low income group include five low income, and 25 lower middle income countries, which are presented in Table 3.

**Table 3**  
The list of selected countries and data for variables (Low/Lower middle income)

#	Code	Income group	Country	GDP growth rate	Stock to GDP	Capitalization to GDP	Stock market turnover ratio
1	NPL	Low income	Nepal	3.923104606	0.731934375	15.35508575	4.9542935
2	TZA	Low income	Tanzania	4.901982212	0.09533032	3.7848215	2.314672725
3	UGA	Low income	Uganda	5.961484743	0.108173813	6.333921056	2.097400686
4	ZWE	Low income	Zimbabwe	1.856522708	26.08438026	183.9703723	6.6442487
5	MWI	Low income	Malawi	4.168455717	0.51388795	17.41132786	4.265743429
6	ARM	Lower middle income	Armenia	2.935049433	0.027635644	0.85974272	4.820084267
7	BGD	Lower middle income	Bangladesh	3.873938291	0.991863133	7.422240722	23.02961456
8	IND	Lower middle income	India	5.412071189	26.85996365	41.89575145	104.0909841
9	BOL	Lower middle	Bolivia	2.849904199	0.119659093	12.36826836	1.017716567

		income					
10	ZMB	Lower middle income	Zambia	2.982019578	0.141132459	12.07352236	1.617937414
11	SLV	Lower middle income	El Salvador	2.186348082	0.405018136	15.968381	3.086101857
12	VNM	Lower middle income	Vietnam	6.528554059	6.747982129	10.75096764	63.70144429
13	PAK	Lower middle income	Pakistan	4.957686569	32.03415096	19.16803245	157.991371
14	TUN	Lower middle income	Tunisia	5.005873246	1.410145905	11.29012195	11.85464873
15	UZB	Lower middle income	Uzbekistan	3.606914352	0.196087143	0.68446999	64.1722697
16	MDA	Lower middle income	Moldova	2.671151587	1.63083675	2.93790725	82.852771
17	MNG	Lower middle income	Mongolia	3.834778492	0.46439925	4.225983688	13.01260356
18	MAR	Lower middle income	Morocco	4.519343579	7.5781585	32.42928073	16.79615323
19	LKA	Lower middle income	Sri Lanka	4.739979808	2.141506009	14.75616109	15.7108745
20	NGA	Lower middle income	Nigeria	4.369939465	1.575149368	16.66918414	7.829565241
21	PHL	Lower middle income	Philippines	3.847101751	9.254364048	44.00382273	23.04333136
22	KEN	Lower middle income	Kenya	4.400020787	1.117334255	19.31448264	4.869498524
23	KGZ	Lower middle income	Kyrgyz Republic	1.339016317	1.5594917	1.310397867	204.8547383
24	GTM	Lower middle income	Guatemala	3.564286081	0.033966733	0.8549389	4.628171

25	EGY	Lower middle income	Egypt, Arab Rep.	5.340930426	12.69586097	31.63158991	28.09927591
26	GHA	Lower middle income	Ghana	3.38011173	0.412229933	10.14187158	5.351184222
27	IDN	Lower middle income	Indonesia	6.038532982	8.311406082	22.148356	43.66334864
28	PSE	Lower middle income	West Bank and Gaza	6.371626787	5.645356223	23.16380385	22.03235423
29	PNG	Lower middle income	Papua New Guinea	3.266491233	0.30524756	122.3268922	0.270791478
30	SWZ	Lower middle income	Swaziland	5.58665669	3.931563143	10.58638212	31.33646534

Source: authors' calculation from *The World Bank, 2016*

The high income group involved 15 upper middle income, and 15 high income countries, as listed in Table 4.

**Table 4**  
The list of selected countries and data for variables (Upper middle/High income)

#	Code	Income group	Country	GDP growth rate	Stock to GDP	Capitalization to GDP	Stock market turnover ratio
1	KAZ	Upper middle income	Kazakhstan	2.49	1.721105608	15.52509323	11.32447992
2	FJI	Upper middle income	Fiji	2.88730825	0.155066309	11.50987594	1.616238718
3	ARG	Upper middle income	Argentina	2.524089605	4.113716058	9.583287112	49.35699147
4	MEX	Upper middle income	Mexico	3.58435694	5.609551436	15.84496358	82.09354394
5	MYS	Upper middle income	Malaysia	6.438098031	27.12151419	124.884737	23.257375
6	PER	Upper middle income	Peru	3.155872418	3.367196005	24.77182152	19.90384338
7	BWA	Upper middle income	Botswana	9.013473896	0.803934679	20.89867589	5.760236211

8	BRA	Upper middle income	Brazil	4.264276163	10.38781183	31.34471591	71.96072955
9	BGR	Upper middle income	Bulgaria	2.049046957	1.690778217	8.657626189	25.58816776
10	CHN	Upper middle income	China	9.40739795	43.58322763	30.91079311	158.9852905
11	COL	Upper middle income	Colombia	4.050516507	2.250462439	20.44768218	11.02058627
12	CRI	Upper middle income	Costa Rica	4.448594492	0.3515343	7.933677235	5.929600313
13	SRB	Upper middle income	Serbia	3.492881431	1.781627893	29.01833713	14.40786225
14	THA	Upper middle income	Thailand	6.113840617	26.65731432	50.36242909	76.32414005
15	GEO	Upper middle income	Georgia	1.482063199	0.279257545	4.917451591	7.150443391
16	LVA	High income	Latvia	4.467754202	0.884015944	7.5601802	14.60339933
17	EST	High income	Estonia	4.438427079	6.545504846	25.31007	28.24580462
18	KOR	High income	Korea, Rep.	7.598016165	55.55654678	35.63015184	141.8909719
19	BHR	High income	Bahrain	4.23183913	4.481606786	94.5735275	5.028291667
20	BRB	High income	Barbados	1.078941007	4.05255666	66.910691	4.56246949
21	BMU	High income	Bermuda	2.451076581	2.530236313	47.41738091	4.855328273
22	HUN	High income	Hungary	1.92284279	14.42876267	19.02297453	65.84297084
23	MLT	High income	Malta	5.32514248	1.422891644	38.91380475	6.128637244
24	URY	High income	Uruguay	2.455288192	0.014754438	1.234974171	2.755166108



25	CYM	High income	Cayman Islands	5.305202786	0.0492667	4.926673	0.9999999
26	HRV	High income	Croatia	2.840129704	1.760609694	28.26486938	7.471407938
27	OMN	High income	Oman	6.012466753	7.736140588	30.50223471	24.14069312
28	SGP	High income	Singapore	7.651063736	68.45479	144.3924491	47.36585616
29	SVN	High income	Slovenia	3.244459447	2.733010063	19.83737994	24.16274081
30	ARE	High income	United Arab Emirates	5.085970333	12.89583335	40.484315	29.47036325

Source: authors' calculation from The World Bank, 2016

The following analysis provides explanations for both overall trends, and the outliers in each income group, by presenting appropriate examples.

## 4.2. Low income group countries

The study of the 30 countries in the low income group illustrates different results in terms of correlation than in the mixed income countries. The GDP growth rate of low and lower middle income countries has little, and negative, correlation with respect to financial market indicators. Stock market value traded to GDP correlates 0.18 with economic growth, when stock capitalisation to GDP, and stock market turnover ratio, has a minus correlation of -0.23 and -0.07 respectively. These coefficients are listed in Table 5.

**Table 5**

Correlation coefficients between GDP growth rate (annual %), Stock market total value traded to GDP (%), Stock market capitalization to GDP (%) and Stock market turnover ratio (%) in Low/ Lower middle income group countries

```
. correlate GDPgrowthrate StocktoGDP CapitalizationtoGDP Stockmarketturnoverratio
(obs=30)
```

	GDPgro~e	Stockt~P	Capita~P	Stockm~o
GDPgrowthr~e	1.0000			
StocktoGDP	0.1804	1.0000		
Capitaliza~P	-0.2295	0.4845	1.0000	
Stockmarke~o	-0.0706	0.4508	-0.1434	1.0000

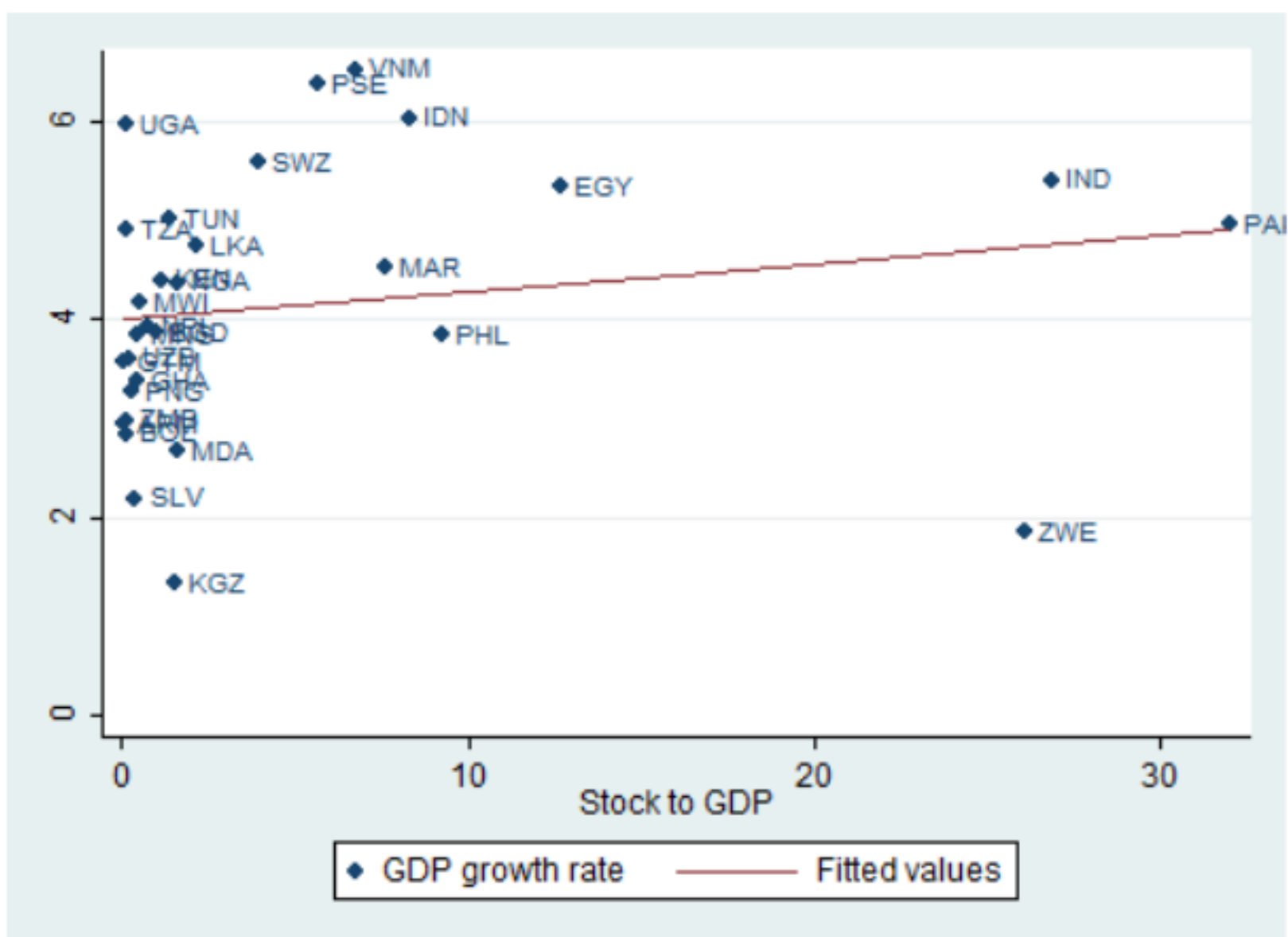
Source: authors' calculation

The results in Figure 1.1 support a small positive effect of stock market total value traded to GDP on economic growth.

**Figure 1.1**

Scatterplot between GDP growth rate (annual %) and Stock market total value traded to GDP (%) in Low/ Lower middle income group countries





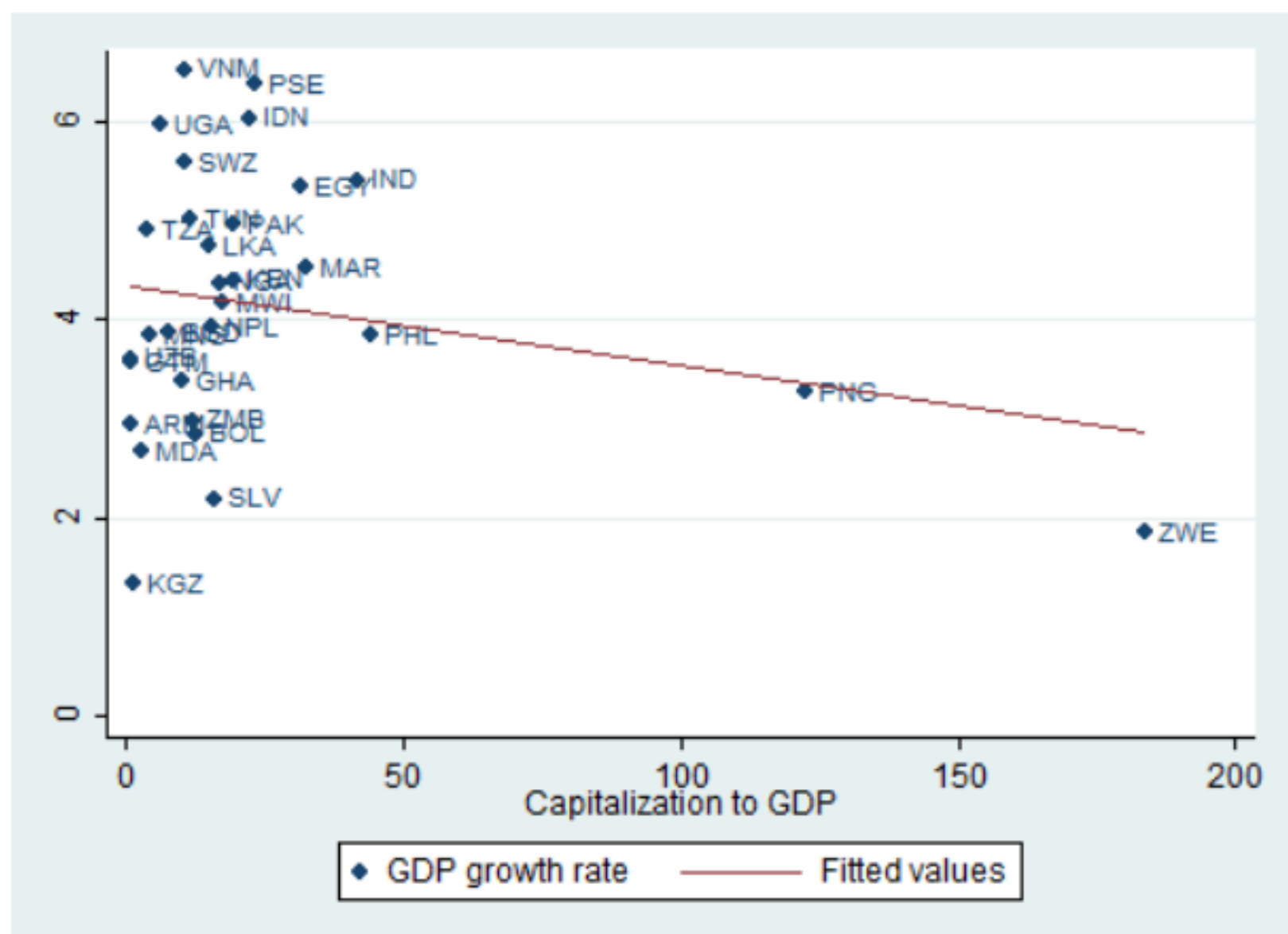
Source: authors' construction

This is true for most low and lower middle income countries in the scatterplot presented. However, some outliers exist, such as Uganda; the West Bank and Gaza; Vietnam; El Salvador; the Kyrgyz Republic; and Zimbabwe.

The scatterplot in Figure 1.2 captures the negative relationship between GDP growth rate and stock market capitalisation to GDP for the given list of countries.

**Figure 1.2**

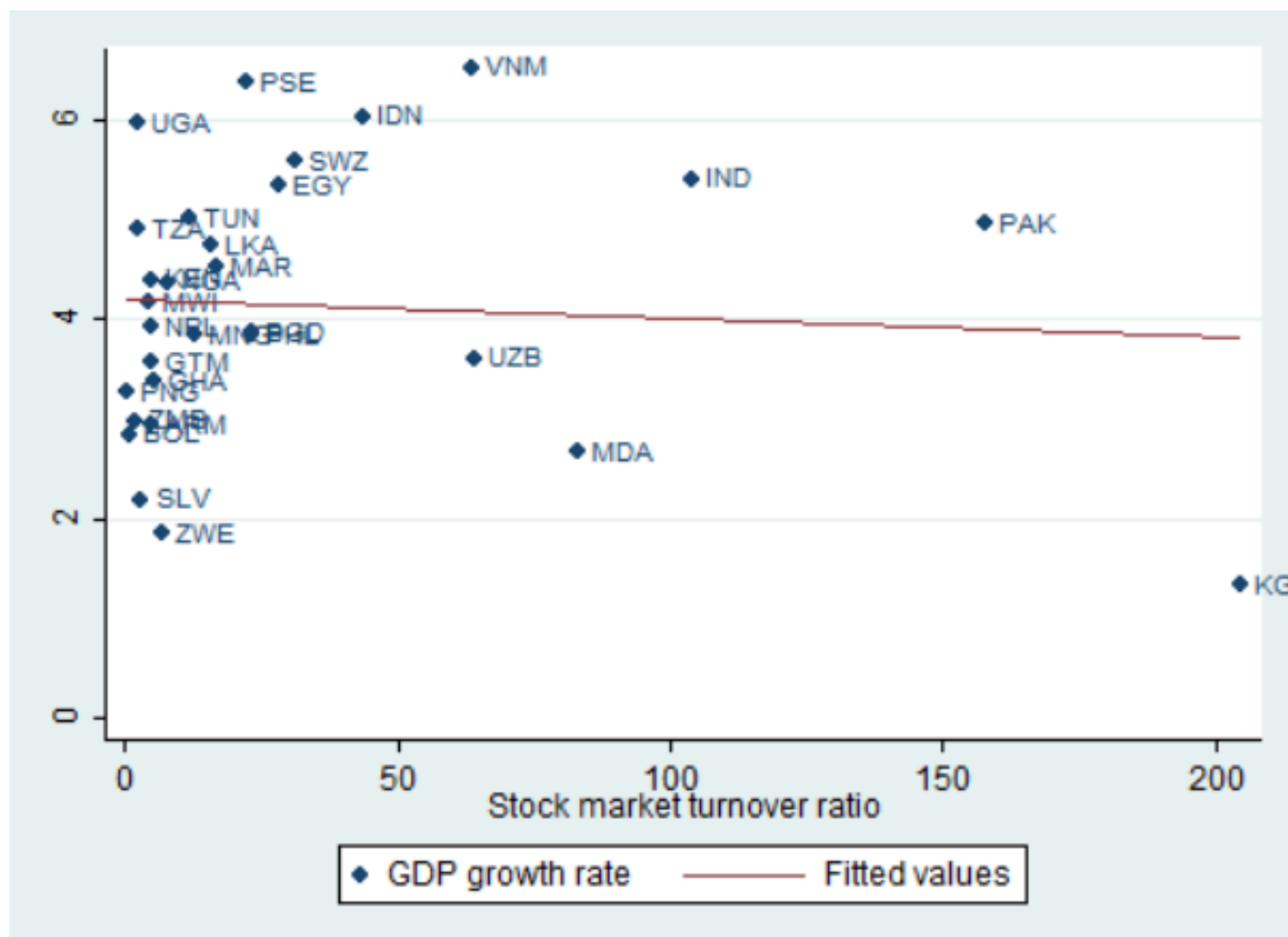
Scatterplot between GDP growth rate (annual %) and Stock market capitalization to GDP (%) in Low/ Lower middle income group countries



Many countries follow a downward trend, apart from Uganda; the West Bank and Gaza; Vietnam; Indonesia; El Salvador; the Kyrgyz Republic; and Zimbabwe.

**Figure 1.3**

Scatterplot between GDP growth rate (annual %) and Stock market turnover ratio (%) in Low/ Lower middle income group countries



Source: authors' construction

In Figure 1.3, the results of the correlation between economic growth and stock market turnover ratio among these countries projects a negative slope pattern. The same outliers exist as in Figure 1.2.

As many studies suggest, the stock markets of low income countries have an insignificant influence on growth, which can be explained by a lack of resources and financial instruments. For example, Rioja and Valev (2014) found that stock markets make no contribution to productivity growth, or capital accumulation, in low income countries. This is because the size and activity of equity markets in these countries have not achieved a stage where they are considerable determinants of growth. The authors also emphasized the key role of banks for low income group countries, because they have a sizable positive impact on capital accumulation. Overall, the findings of the analysis conducted as part of this paper support this view.

However, some outliers exist, notably Zimbabwe. In order to explain this, the research of Tichanova Zivengwa et al. (2011) was employed. The authors justified the case of Zimbabwe through investment, explaining that stock market size caused investment, which in turn resulted in real GDP per capita. Therefore, the size of the stock market attracts investment, and this situation has a considerable effect on real GDP per capita. The study also showed that the turnover of the stock market had no significant impact on real GDP per capita at the outset, and its power only became more apparent during later periods.

Another outlier in the relationship between the stock market and economic growth in low income countries is Vietnam. An explanation for this case derives from research by Nguyen Thi Phuong Nhung (2013), which used the error correction mechanism (ECM), and the Granger causality test, to clarify the connection. The author states that while the stock market of Vietnam is immature and underdeveloped, it has played a key role in financing and funding the support of the Vietnamese growth rate. Phan Nguyen Ngoc Xuan My and et al. (2016) provide a more detailed explanation for Vietnam being an outlier in low income countries, asserting that overconfidence has been justified as a crucial factor for the observed anomalies in the securities markets. The authors also found that a high amount of stock returns result on every occasion, because of the high trading volume, despite the measurement of trading value.

According to the results, it can be asserted that the stock market has a mainly negative effect on economic productivity in respect to low income group countries. This might be because an underdeveloped stock market exists in low income countries, which weakens the country's economy. Nevertheless, stock market total value traded to GDP makes a minimal contribution to growth. Surprisingly, exceptions exist, such as Uganda; the West Bank and Gaza; Vietnam; El Salvador; the Kyrgyz Republic; and Zimbabwe, in which stock markets might contribute to the countries' economic growth.

### 4.3. High income group countries

The research conducted on the 30 high income group countries demonstrates reverse correlation results when compared with the low income countries. The GDP growth rate of upper middle and high income countries has high positive correlation in regard to financial market indicators. Stock market value traded to GDP correlates 0.64 with economic growth, when stock capitalisation to GDP and stock market turnover ratio has correlation of 0.35 and 0.49, respectively. These indicators are listed in Table 6.

**Table 6**  
Correlation coefficients between GDP growth rate (annual %), Stock market total value traded to GDP (%), Stock market capitalization to GDP (%) and Stock market turnover ratio (%) in Upper middle/ High income group countries

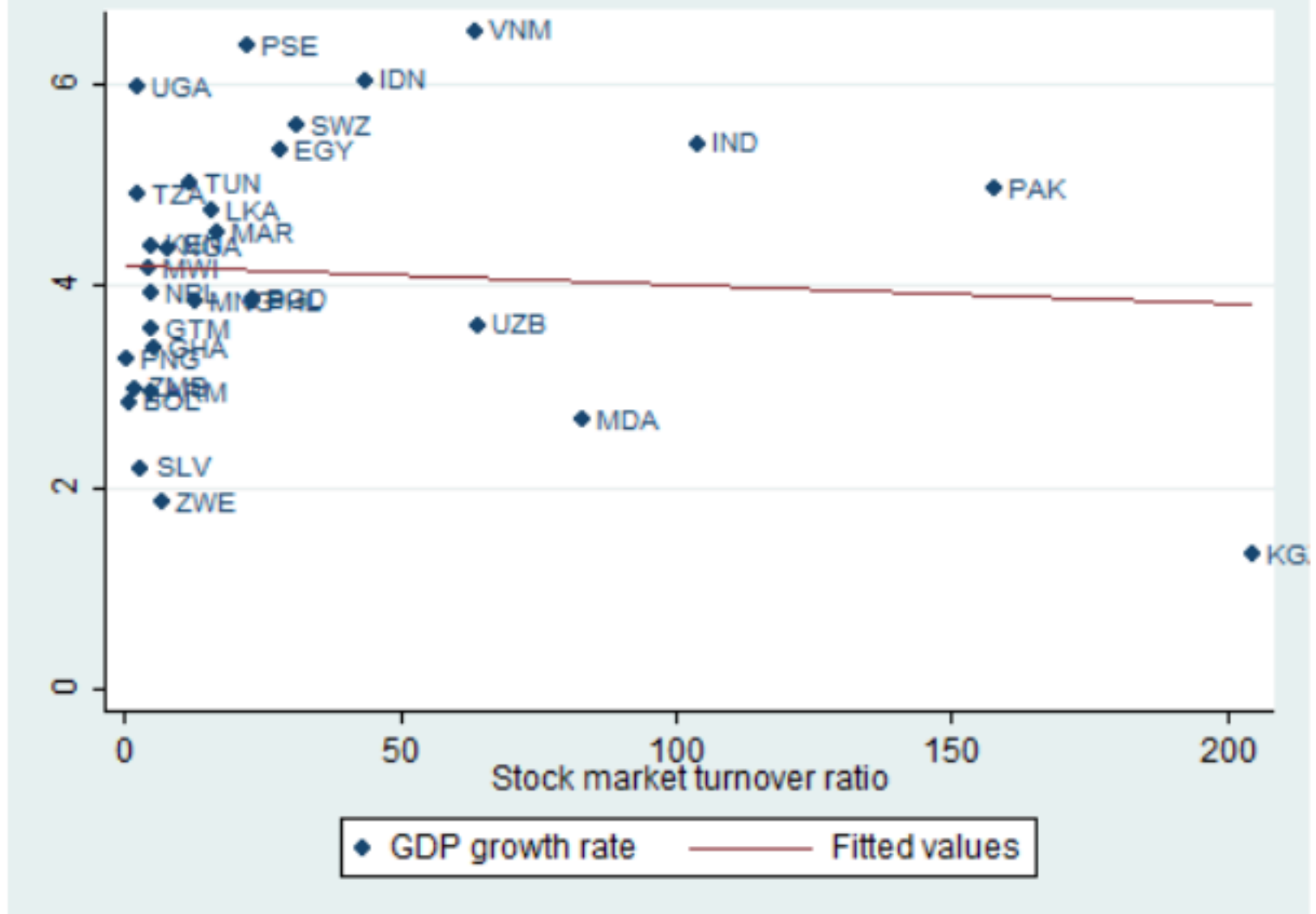
```
. correlate GDPgrowthrate StocktoGDP CapitalizationtoGDP Stockmarketturnoverratio
(obs=30)
```

	GDPgro~e	Stockt~P	Capita~P	Stockm~o
GDPgrowthr~e	1.0000			
StocktoGDP	0.6374	1.0000		
Capitaliza~P	0.3552	0.6072	1.0000	
Stockmarke~o	0.4862	0.7061	0.0642	1.0000

Source: *authors' calculation*

In the results in Figure 2.1, the scatterplot demonstrates an overall positive pattern between GDP growth rate and stock market total value traded to GDP, with some exceptions among upper middle and high income group countries, such as Botswana; Singapore; Malaysia; Georgia; Barbados; Bulgaria; Argentina; Hungary; and Mexico.

**Figure 2.1**  
Scatterplot between GDP growth rate (annual %) and Stock market total value traded to GDP (%) in Upper middle/ High income group countries

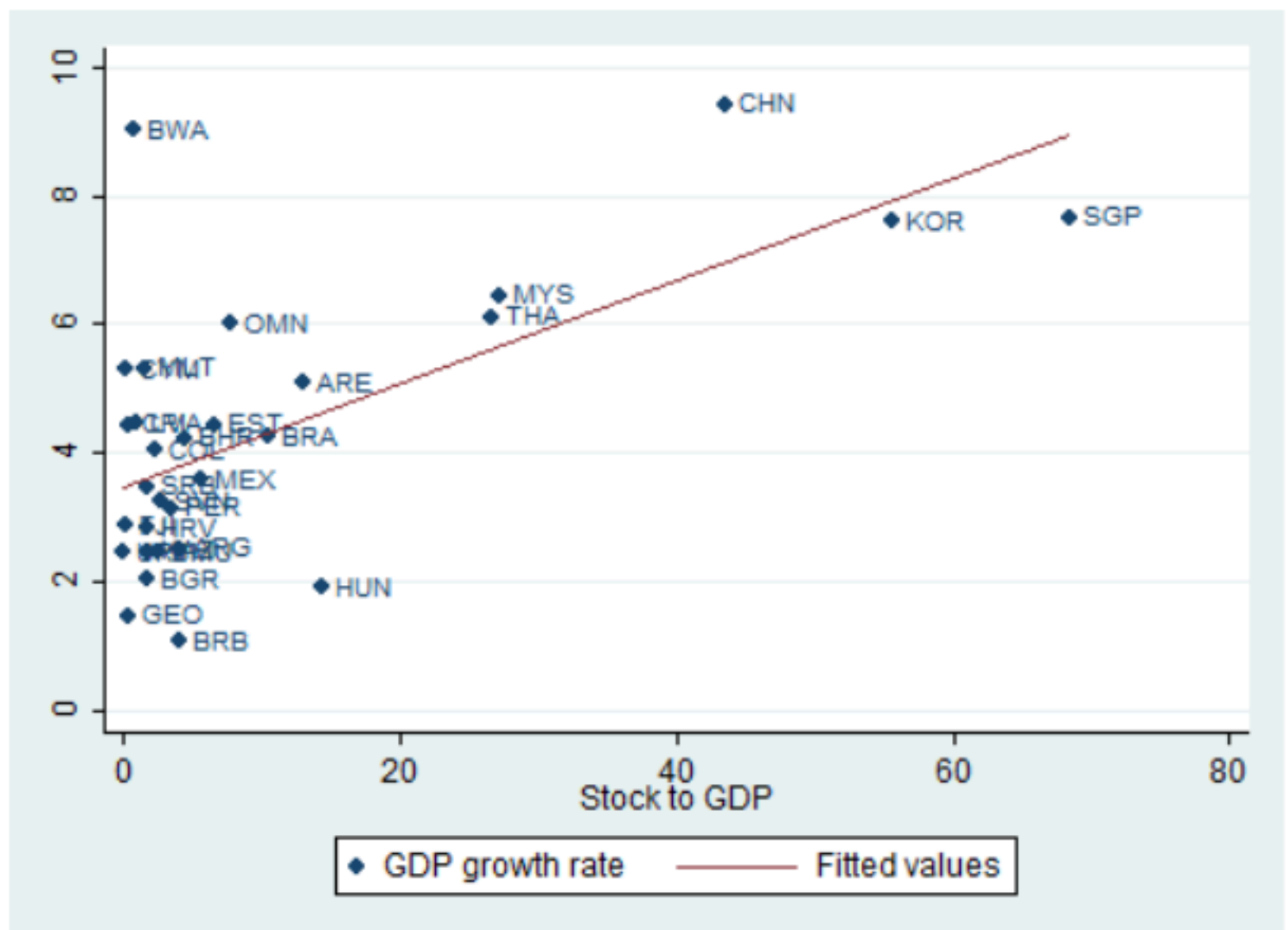


Source: authors' construction

In Figure 2.2, the high positive trend demonstrated between GDP growth rate and stock market capitalisation has fewer outliers than in Figure 2.1.

**Figure 2.2**

Scatterplot between GDP growth rate (annual %) and Stock market capitalization to GDP (%) in Upper middle/ High income group countries

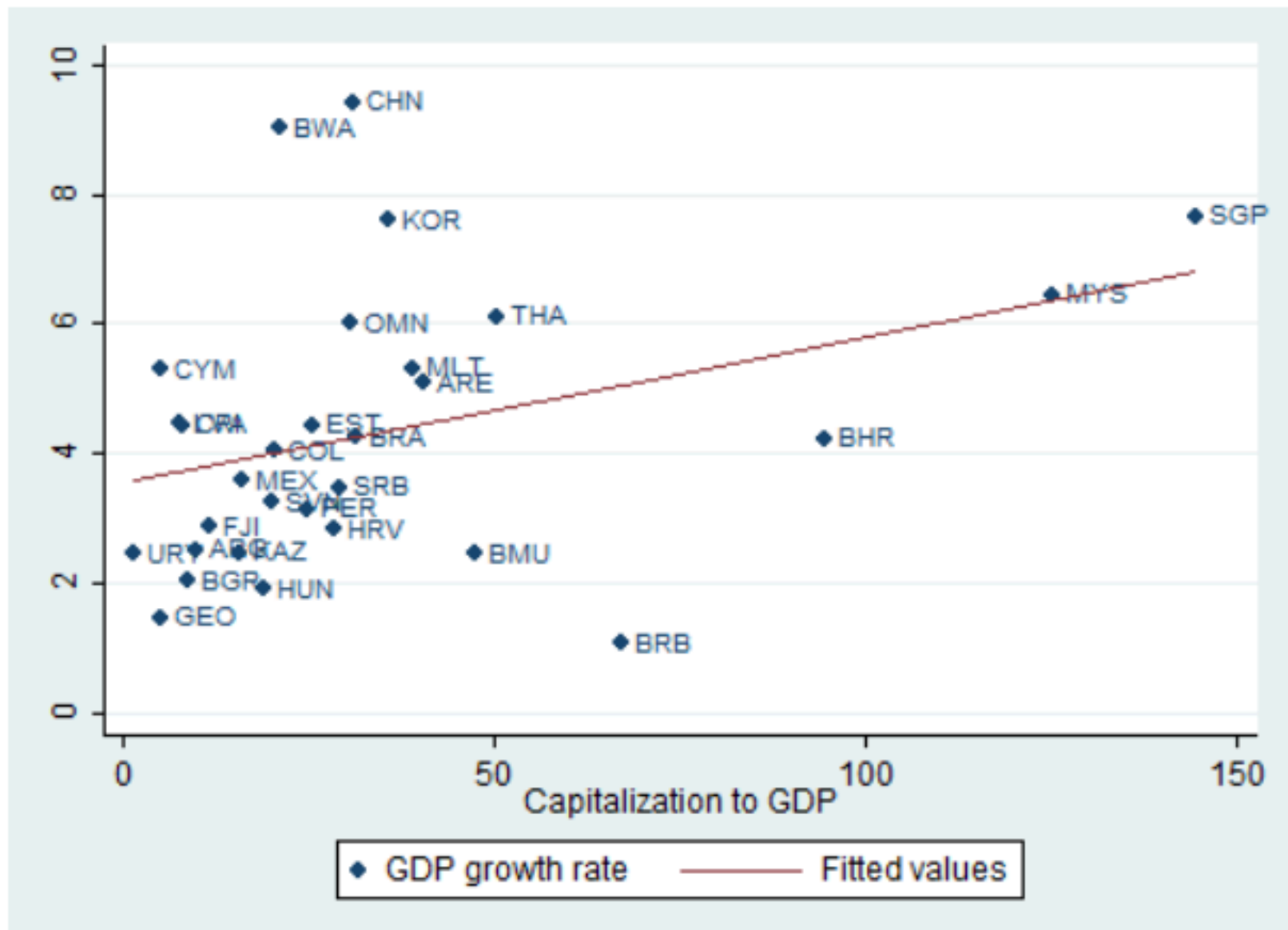


Source: authors' construction

These are Botswana; China; Georgia; Barbados; and Hungary. The scatterplot in Figure 2.3 illustrates

largely the same positive results between GDP growth rate and stock market turnover ratio. Nevertheless, a number of exceptions exist, such as Botswana; China; the Korean Republic; Georgia; and Barbados.

**Figure 2.3**  
Scatterplot between GDP growth rate (annual %) and Stock market turnover ratio (%) in Upper middle/ High income group countries



Source: authors' construction

This study reaffirms the conclusion of Rioja and Valev (2014) that the stock market has a significant positive impact on productivity growth in high income group countries. Therefore, the economies of these countries can reap some benefit from the stock market, and potentially replace their source of income. However, groups of outliers frequently appear, such as Hungary; Botswana; China; and Barbados. Because of the inadequacy of the source material, the following paragraphs provide explanations for Hungary and China alone.

A common feature of stock market evolution in many developing, and in some transitional economies, is that further stock market development is desirable, specifically in terms of empirical evidence supporting the development of the stock market as positively linked to future growth (Levine and Zervos, 1998; Beck et al., 2001). Nevertheless, certain factors contribute to a constraint in the stock market size in Hungary. Specifically, firms of FDI, which represent a significant proportion of the domestic GDP share, are catalogued at foreign stock markets. Consequently, a considerable increase in the capitalisation of the stock market in Hungary might be taken from only the entry of small or medium sized firms. However, since almost all of these are very small, and represent high risk, they are unlikely to attract investors. It has been indicated that the level of financial depth remains relatively low in Hungary (Colombo and Driffill, 2003).

Interestingly, China, one of the leading economies, appears as an outlier. Lei Pan and Vinod Mishra (2016) justified this through empirical research, arguing that the reason for the minimal impact is possibly the fact that China is huge country, and the stock market still constitutes only a small amount of the full economy, and is therefore inadequate to have an influential impact on the overall economy of the country. The authors explained the negative link between the stock market and economic growth via stock market as a tool for the Chinese state to reach its specific aim, rather than to reflect growth. Moreover, apparent evidence of a lack of rational thriving on the A share markets could result in financial bubbles. The authors' empirical evidence finds no proof to support this form of association between the financial sector of China, and the real sector, in respect of the short-term relationship.

There are some middle/high income group countries which have small contribution to economic growth in terms of stock market development. Because these emerging countries have only started to build their competency by involving some innovations. Kazakhstan, for instance, might be exemplary in this



regard. As Yessengeldin et al. (2016) conclude in that Kazakhstan's economic growth can be targeted on the basis of innovations with proper usage of new scientific and technological progress.

With respect to the results, it can be assumed that the stock market has a strong positive influence on economic growth in terms of high income group countries. This could be because, in high income countries, a sufficiently advanced level of stock market exists to affect the country's economy, and even to replace some sources of income. Nevertheless, exceptions exist, such as Hungary; Botswana; China; and Barbados, whose stock markets are likely to be too weak to contribute to their economic growth.

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## 5. Conclusion

This research paper studied the impact of stock markets on productivity growth among 60 low and high income group countries. Overall, the results demonstrated a small positive trend in the relationship of the taken variables. The most significant contribution occurred when low and high income group countries were investigated separately.

In low and lower middle income countries, the stock markets had largely not contributed to economic growth, because the size and liquidity of equity markets in developing countries were not significant determinants of the growth source. However, some countries showed surprising results, despite falling in the low income group.

Conversely, in upper middle and high income group countries, the stock markets were mainly found to possess a positive sizable influence on growth. This supported the theory of Allen and Gale (1999), which presented stock markets as being essential in funding innovations that lead to the growth of productivity. The results provided in this paper emphasize a strong relationship between given variables, but also demonstrate some outliers among high income countries.

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[Index]

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