

## Impact of Bank Stock Returns on Economic Growth by Considering Indicators of Institutional Characteristics and Financial Development in the United States

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**Abstract:** Previous research has established (1) that a country's financial sector influence future economic growth and (2) that stock market index returns affect future economic growth. We extend and tie together these two strands of the growth literature by analyzing the relationship between banking industry stock returns and future economic growth also we survey Indicators Of Institutional Characteristics, such as bank-accounting-disclosure standards, banking crises, and government ownership of banks. Using ARDL techniques to analyze time series data for the period between 1974 and 2011 in United states, we find a positive and significant relationship between bank stock returns and future GDP growth By Considering Indicators of Institutional Characteristics and Financial Development in United States.

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### 1. Introduction

Empirical research strongly supports the view that banks promote economic growth at the firm, industry and country levels. The recent literature also highlights that not only is the aggregate size of financial intermediaries important for economic growth, but also that the institutional framework of the banking sector can significantly affect economic growth. Most of the studies on the association between financial development and economic growth omit stock market development, we have to wait until Levine and Zervos (1998) who empirically assess the relationship between both stock markets and banks and economic growth. Their works suffer from many econometric problems while recent works has tried to solve some of the statistical shortcomings in the Levine and Zervos approach, statistical and conceptual issues remain. Rousseau and Wachtel (2000) provide a huge contribution to the growth literature by using panel data techniques.

To study the relationship between stock markets, banks and economic growth, Rousseau and Wachtel (2000) use the difference panel estimator developed by Arellano and Bond (1991) and show that both stock market development and banks contribute to spur economic development. We examine whether bank and stock market variables jointly enter the growth regression significantly. In terms of financial development indicators, we permit the use of the same basic variables of bank and stock market developments as in Levine and Zervos (1998), and

Beck and Lev (2003). This paper the neo-classical growth model explains the interaction between financial markets and economic growth in three different ways. First, growth depends on capital accumulation - increasing the stock of capital goods to expand productive capacity. Also, net investment and the need for sufficient saving to finance investment through financial deepening may lead to growth; and finally, higher savings - postponing consumption to finance increased allocation of resources towards investment (Solow, 1956). Similarly, the endogenous growth theory posit that government policy to increase capital or foster right kinds of investment in physical capital can permanently raise economic growth (Romer, 1986; Lucas, 1988). However, traditional growth theorists, for instance, believe that there is no correlation between stock market development and economic growth because of the presence of level effect and rate effect. We address this issue using ARDL estimations. We then analyze the relationship between the continuous growth rates of real GDP and the lagged values of bank returns. We also investigate the impact of country-specific and banking industry characteristics on the link between bank stock returns and growth. We construct variables for country-specific and institutional characteristics that are relevant to growth and financial development, including the level of government ownership of banks, systemic banking crises, regulation of bank-accounting-disclosure and financial development. We then interact these variables with bank stock returns to

investigate the impact of those country-specific and institutional characteristics on growth through bank stock prices. This paper is organized as follows. First the model applied to analyze the impact of Bank Stocks Returns on Economic Growth by Considering Financial Development; second the impact of Bank Stocks Returns on Economic Growth by Considering Indicators Of Institution Characteristics. Third,

empirical results are presented. We conclude the paper with the summary session.

**2. Data and Methodology**

**2.1. Data**

Our data set includes information about United States from 1974 and 2011. Table 1 presents definitions of the main variables in our study along with their sources.

Table 1: definitions of the main variables

Variable	Description And data sources
<b>Dependent variable</b> GDP growth rate (Gyp)	The quarterly GDP series are taken from International Financial Statistics (IFS), Data stream International, and the OECD national account
<b>Independent variable</b> Stocks return(R)	Stock returns are obtained from the following formula: $R_t = \frac{P(t) - P(t-1) + D}{P(t-1)}$
<p><b>Indicators Of Institutional Characteristics</b></p> <p>1) Government ownership of banks (Gov)</p> <p>2) Banking crises (Immp)</p> <p>3) Bank-accounting-disclosure standards(Acct)</p>	<p>1) We construct this variable from Table 1 of La Porta et al. (2002). The variable takes the value of one when a country’s government ownership of banks is above the median of the sample group.</p> <p>2) We construct this variable from Mohammad Nad ali (2009). For investigating the banking crisis of the exchange market pressure index is used.</p> <p>3) This variable is constructed from Barth et al. (2001) who provide a data set on bank regulation and supervision around the world. We construct the index based on the following five questions:</p> <p>(1) whether the income statement includes accrued or unpaid interest or principal on non-performing loans; (2) whether banks are required to produce consolidated financial statements, including non-bank financial affiliates or subsidiaries;</p> <p>(3) whether the off-balance sheet items are disclosed to the public;</p> <p>(4) Whether banks’ directors are legally liable for misleading or erroneous information;</p> <p>(5) whether the penalties have been enforced.</p> <p>We assign one to each question if the answer is yes, therefore, the maximum index for a country will be five if the answers for all question are yes, and the minimum index will be zero otherwise Indicators of financial development</p>
<p><b>Financial Development</b></p> <p>1) Private credit(Privey)</p> <p>2) Liquid liabilities(Deapth)</p> <p>3) Commercial-central bank(Bank)</p>	<p>1) The value of the credit issued by the deposit-taking banks and other financial institutions to the private sector divided by GDP. The variable is constructed following the methodology of Beck et al. (2000) based on the data from International Financial Statistics. Private credit is calculated using the sum of line 22d and 42d, GDP is line 99b, and CPI comes from line 64. We calculate the annual private credit for each market and take the average over the sample period.</p> <p>2) The value of the liquid liabilities of the financial system (currency held outside the banking system plus demand and interest-bearing liabilities of banks and non-bank financial intermediaries) divided by GDP. The variable is constructed following the methodology of Beck et al., (2000) based on the data from International Financial Statistics. Liquid liabilities are calculated using liquid liabilities (line 551) or money plus quasi money (line 351) if liquid liabilities is not available. If neither of these two numbers is available, we use time and saving deposit (line 25). Data for GDP uses line 99b; data for CPI comes from line 64. We calculate the annual liquid liabilities for each market and take the average over the sample period.</p> <p>3) The ratio of commercial banks’ domestic assets divided by the total domestic assets of commercial banks and the central bank. The variable is constructed following the methodology of Beck et al. (2000) based on the data from International Financial Statistics. We use the lines 22a–d for the assets of deposit money banks and line 12a–d for assets of central banks. We calculate the annual commercial-central bank for each market and take the average over the sample period</p>

**2.2. Methodology**

The problem of non-stationary of most of the economic time series which is likely to render standard ordinary least squares (OLS) estimator bias necessitated taking the first differences of the time series before implementing standard OLS.

However, this may leads to the loss of information that is important for the long-run equilibrium. Cointegration approach has therefore been developed by Engle and Granger (1987) overcame this problem. According to this approach, there exist linear combination non-stationary time series which is stationary. Advances in econometrics have resulted in number of techniques in estimating cointegration equation (e.g. Engle and Granger (1987), Johansen(1995) Pessaran and Pessaran (2001), etc). The present study employs Autoregressive Distributed Lag (ARDL) model

(Pesaran, Shin and smith, (2001) to test the presenence of cointegration. Our interest is to study the long-run relationship between economic growth and two financial sector indicators; bank competition and stock market development. We intuitively specify our model of interest as:

$$GYP = \alpha + \beta_0 R_t + \beta_1 Deapth_t + \beta_2 Bank_t + \beta_3 Privey_t + \beta_4 Immpt_t + \beta_5 Acct_t + \beta_6 Gov_t + \mu_t$$

Where  $\mu_t$  is the error terms,  $\alpha$  is the drift,  $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$  are sensitivity of real GDP growth to  $R_t, Deapth_t, Bank_t, Privey_t, Immpt_t, Acct_t, Gov_t$ . To estimate the relationship between Economic Growth and Indicators of Institutional Characteristics and Financial Development in the United States we have:

Table 2: Autoregressive Distributed Lag Estimates ARDL(6,0) selected based on Schwarz Bayesian Criterion

Dependent variable is GYP			
26 observations used for estimation from 1983 to 2008			
Regressor	Coefficient	Standard Error	T-Ratio[Prob]
GYP(-1)	.39563	.19718	-2.0064[.068]
GYP(-2)	.37557	.16355	-2.2964[.040]
GYP(-3)	.42537	.19692	-2.1601[.052]
GYP(-4)	.22514	.17623	-1.2775[.226]
GYP(-5)	.41046	.16926	-2.4251[.032]
GYP(-6)	.34084	.16153	-2.1101[.057]
R	.1757E-3	.1777E-3	-.98869[.342]
C	1.9671	.70043	2.8084[.016]
BANK	.60834	.49222	1.2359[.240]
PRIVEY	.80595	.38788	-2.0778[.060]
DEAPTH	94.0471	26.5056	-3.5482[.004]
GOV	.0011580	.3093E-3	-3.7442[.003]
ACCT	.1297E-3	.1067E-3	1.2150[.248]
IMMP	.4426E-3	.1242E-3	3.5633[.004]
R-Squared = .75424		R-Bar-Squared = .48800	
S.E. of Regression = .081993		F-stat.F( 13, 12) = 2.8330[.040]	
Mean of Dependent Variable = .0060540		S.D. of Dependent Variable = .11459	
Residual Sum of Squares = .080675		Equation Log-likelihood = 38.1881	
Akaike Info. Criterion = 24.1881		DW-statistic = 2.4288	

Table 3: Diagnostic Tests

Test Statistics	LM Version	F Version
A:Serial Correlation	*CHSQ( 1)= 2.3428[.126] *F( 1, 11)= 1.0894[.319]	
B:Functional Form	*CHSQ( 1)= 17.0710[.000] *F( 1, 11)= 21.0305[.001]	
C:Normality	*CHSQ( 2)= 1.4003[.497] * Not applicable	
D:Heteroscedasticity	*CHSQ( 1)= 6.6604[.010] *F( 1, 24)= 8.2655[.008]	

A:Lagrange multiplier test of residual serial correlation

B:Ramsey's RESET test using the square of the fitted values

C:Based on a test of skewness and kurtosis of residuals

D:Based on the regression of squared residuals on squared fitted values

### 3. Emericaland Analysis.

#### 3.1 Unit Root Test

A necessary but not sufficient condition for cointegration is a test for unit root which was

conducted using ADF test and PP test to all the variables in levels and in first difference.

Table 4:Unit root tests for residuals

	Test Statistic	LL	AIC	SBC	HQC
DF	-4.1509	27.9161	26.9161	26.4995	26.8747
ADF(1)	-3.6062	28.5544	26.5544	25.7212	26.4715
ADF(2)	-2.5020	28.5575	25.5575	24.3076	25.4332
ADF(3)	-2.5635	29.0800	25.0800	23.4136	24.9144
ADF(4)	-2.5110	29.5058	24.5058	22.4228	24.2987
ADF(5)	-3.0512	31.2329	25.2329	22.7333	24.9844
ADF(6)	-2.3510	31.2344	24.2344	21.3182	23.9445
ADF(7)	-1.9851	31.2669	23.2669	19.9341	22.9356
ADF(8)	-1.4677	31.6011	22.6011	18.8517	22.2284

LL = Maximized log-likelihood AIC = Akaike Information Criterion

SBC = Schwarz Bayesian Criterion HQC = Hannan-Quinn Criterion

#### 3.2. Long Run Relationship- ARDL

The existence of long run relationship among the variables is examined through ARDL Model estimation. The results of the unit root test allow us

to implement ARDL model for  $Y_t$  with intercept and no trend using the upper bound critical values reported in Pesaran et al (2001) for determination of cointegration.

Table 5:Estimated Long Run Coefficients using the ARDL Approach ARDL(6,0) selected based on Schwarz Bayesian Criterion

Dependent variable is GYP			
26 observations used for estimation from 1983 to 2008			
Regressor	Coefficient	Standard Error	T-Ratio[Prob]
R	.5538E-4	.5648E-4	-0.98052[.346]
C	.61993	.17987	3.4466[.005]
BANK	.19172	.15954	1.2017[.253]
PRIVEY	.25400	.10645	-2.3861[.034]
DEAPTH	29.6396	5.7900	-5.1191[.000]
GOV	.3650E-3	.7829E-4	-4.6618[.001]
ACCT	.4086E-4	.3373E-4	1.2114[.249]
IMMP	.1395E-3	.3569E-4	3.9083[.002]

### 4. Summary and Conclusion

This study survey Impact of Bank Stocks Returns on Economic Growth by Considering Indicators of Institutional Characteristics and Financial Development in United States. We extend and tie together these two strands of the growth literature by analyzing the relationship between banking industry stock returns and future economic growth also we survey Indicators Of Institutional Characteristics, such as bank-accounting-disclosure standards, banking crises, and government ownership of banks. Using ARDL techniques to analyze time series data for the period between 1974 and 2011 In United states, we find a positive and significant relationship between bank stock returns and future GDP growth By Considering Indicators of

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