Determinants of Financial Institution Developments during the Antebellum Illinois

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Abstract

During 1843-1863 there was phenomenal growth of banking institution in Illinois andthe paper empirically explored the significant determinants of financial development, banks in particular. The empirical results show that the significant factors for bank development of the antebellum period were per capita GDP, per capita bank capital, exports, and per bank asset. Per capita GDP, per capita bank capital, exportswere positively related whileper capita bank assets were negatively related to bank development. The study finds that the developmentof bank number is inelastic with respect to per capita GDP, per capita bank capital, export, and per capita bank asset; and their elasticities were0.64, 0.84, 0.17, and -0.008 respectively.The policy impact of the findings is provided.

JEL Classification: G20, G21, O40

Keywords: Antebellum, Bank, Economic Growth, Financial, and Institution and Economics

I Introduction

In American history, the antebellum era is generally considered to be the period before the Civil War and after the War of 1812[2]. During this period, the regulation and chartering of banks was a dominant issue. The chartering of a new bank involved not only economic considerations but also involved politicsand corruptions.Before the demise of the Second Bank of the United States in 1836, the only form of banking wasthe chartered banking. The chartering of a new bank was not easy. Although economic consideration was an important factor for chartering a new bank, political influence, connection, and corruption played dominant factors during the chartered banking period 1811-1832.

The demise of the Second Bank of the United States in 1836, ended the Hamiltonian philosophy that the supervision of banks was an important federal responsibility. Banking and monetary policy began a new phase. Bank regulation and supervision were transferred tostate authority. The federal government was no longer in charge of bank regulations. Each state was responsible for its own banking policy and; the state of Illinois was looking for a new banking system. The "free banking" movement gained considerable support during this period. With the establishment and success of free banks in Michigan (1837), New York (1838), Georgia (1838), and Alabama (1849), other states followed their suit. A total of 19 states adopted the free banking system before the Civil War (Rashid & Samad, 2010).Under the free banking system, the establishment of a Denovo bank was almost automatic. Any group or association could open a bank if the bank could meet the minimum capital requirements prescribed by the state. The amount of capital requirement varied from state to state.The minimum capital to open a bank in New York was $100,000 (Kevin Dowd, 1992), $50,000 in Illinois (Rashid & Samad, 1995), $200,000 and $1 million in Vermont and Pennsylvania respectively (Knox, 1903).

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[2] To some historians, antebellum period constituted from the beginning of the adoption of the Constitution in 1789 to the beginning of Civil War in 1861.

Thus, the most important factor for determining the establishment of a De Novo bank during the free banking period before the Civil War was the amount of capital. Capital was important for banks throughout the antebellum period for providing safety to depositors' concern. During the free banking period in the 1840s and 1850s, there was a large growth of banks. The establishment of a large number of banks was a natural response for two main reasons: (i) there was a growing capital supply for the emerging small entrepreneurs, businesses, and merchants (Rashid & Samad, 2010). (ii) The US economy was growing due to growing industrialization and the rise of manufacturing in the North. There was also a heavy development of railroad and river transport.What contributed to the development of banks (number of banks) during the antebellum period has not been empirically explored. An empirical study in finding the significant factors that contributed to the development (number) of banking firms during the antebellum period 1843-1863 is, thus, important and will be an important contribution in banking literature. The findings of the determinant will also have significant policy implication for the regulators and the organizers of a De Novo bank. The organizers of a De Novo bank may get inside from this study in their establishment.It is important for the bank regulators, who authorize the establishment of a De Novo bank; and who constantly ask various questions to the organizers of De Nov banks, to know the significant factor/s before the permission of chartering.

Filing a charter application for a bank is a costly process. The organizers must evaluate their business prospects and answer questions to the determinants that might affect the new institutions' success. Thus, finding bank determinants –internal and external- is important for the organizers of a De Novo bank when applying for a new bank or a new branch. Early determination saves bank's scarce resources.The paper is organized as: A brief description of antebellum banks and the plausible contributing factors is outlined in Section II. Section III provides a brief survey of literature. Data and a detail methodology are described in Section IV. Section V provides empirical results, conclusion, and policy lessons.

IIAntebellum Bank and the Contributing Factors for banking Growth: Bank Development

During the antebellum period, 1834-1863 in particular, there were basically two types of bank operation. The state chartered banks and the free banks. Some states had both free banks and chartered banks operating side by side. Ohio was an example. There was a phenomenal growth of bank numbers. The descriptive statistics of the bank numbers, in Table 1, shows that the average bank number was 984during 1834-1863. The median number of banks was 826.50. The minimum number and the maximum number of banks were 506 and, 1601 respectively. The high standard deviation of 339.03suggests the bank numbers fluctuated a lot around the mean bank number of 984 during the period. The high probability of Jarque Bera (0.14) suggests the series is normally distributed.The development of the bank numbers was growing because of several internal and external factors of the period. The plausible factors were bank capital, bank deposits, bank assets, population, and economic growth. The descriptive statistics of each of these factors is provided below.

Table1Descriptive Statistics of Variables*

	BANKS	POPULATION	GDP	PCGDP	CAPITAL	TA	DEPOSITS
Mean	984.0000	22.91500	44394.97	1873.567	290.8333	688.0667	150.0667
Median	826.5000	22.14500	40020.00	1793.000	275.5000	640.0000	112.5000
Maximum	1601.000	33.36000	78660.00	2341.000	430.0000	1209.000	394.0000
Minimum	506.0000	14.37000	23623.00	1594.000	197.0000	398.0000	56.00000
Std. Dev.	339.0339	6.006867	16800.87	219.6406	81.01259	219.7786	85.61418
Skewness	0.649422	0.248411	0.454652	0.406609	0.387259	0.557376	1.034116
Kurtosis	1.795273	1.765922	1.839781	1.802084	1.674390	2.332063	3.304989
Jarque-Bera	3.922954	2.212226	2.716174	2.620409	2.946400	2.111014	5.463256
Probability	0.140651	0.330842	0.257152	0.269765	0.229191	0.348016	0.065113
Sum	29520.00	687.4500	1331849.	56207.00	8725.000	20642.00	4502.000
Sum Sq. Dev.	3333376.	1046.391	8.19E+09	1399017.	190328.2	1400776.	212563.9
Observations	30	30	30	30	30	30	30

***GDP= Gross Domestic Product, PCGDP= per capita GDP, TA= Total assets

Capital

Bank capital had always been an important issue during the antebellum period due to frequent bank failures and the subsequent losses of depositors. Banks were required to provide sufficient capital under the capital requirement clause. The banking system of the antebellum period may be classified into two: (i) the chartered banking, and (ii) the free banking. Capital requirement was important in both forms of banking systems.Under the chartered banking system; the opening of a De Novo bank required a charter. A charter for a bank was approved by the legislature. Banks were required to show an adequate amount of capital. Although bank capital requirements and economic factors of the area were important factors, getting the legislative approval was very difficult unless the organizers of the new bank had strong connections with the dominant political party.**T**he Free Banking System was a welcome change from the chartered banking system.Under the free banking system(1838-1863), an opening of a De Novo bank was conditional to minimum capital requirement. Banks were required to deposit capital in state of bonds. Any group or association could open a De Novo bank if the organizers deposited the minimum capital prescribed by the state law. The permission to open a bank was almost automatic if the minimum capital was met (Rashid & Samad, 2010).

The descriptive statistics of bank capital growth, in Table 1, shows that the average bank capital was $290.83 million during 1834-1863. The median bank capital was $275.5 million. The minimum capital and the maximum capital of banks were $197.7 million and $430.0 million respectively. The low standard deviation of $81.0 suggests bank capital did not fluctuate much around the mean capital of $290.83. The high probability (0.22) of Jarque Bera suggests the series is normally distributed.Capital was a dominant factor for the establishment of a De Novo bank.It is, thus, expected that the higher the amount of bank capital the higher the number of bank development, unless minimum capital was met.

Assets

During the early period of the antebellum period, the supply of credit under the chartered banking system was available to mainly an elite class of society and to those who had connection to bank managements and political parties. When the free banking system was introduced, there was a great change. Free banking was more democratic. The natural response of free banks was to supply the credit needs of the emerging small entrepreneurs who were previously denied. The supply of credit needs to small businesses, farmers, and traders was readily available. As a result, the supply of credits was increased significantly as loans were abundantly available; and per capital bank money increased noticeably.The descriptive statistics of bank capital growth, in Table 1, shows that the average bank asset was $688.06 million during 1834-1863. The median asset of a bank was $640.00 million. The minimum capital and the maximum assets of banks were $120.9 million and $640 million respectively. The high standard deviation of $218.0 suggests bank assets fluctuated a lot around the mean asset of $688.06. The high probability, 0.34, of Jarque Bera suggests the series is normally distributed.It is, thus, expected that the larger the assets of a bank the higher the expected number of banks (through bank permission).

Deposits

During the antebellum period, specie was the medium of exchange. Deposits were made in specie. Banknotes were used side by side due to the lack of adequate specie in circulation. Safety to depositors' deposits was the main concern throughout the antebellum period. So, the banking law for most states clearly introduced a provision that the depositors of a bank had a lien on bank assets and the depositors' demand must be met on demand. The failure to pay on demand forfeited the banking license in Illinois (Samad, 1991). Because of the safety provision, bank deposits grew during the period.The descriptive statistics of bank capital growth, in Table 1, shows that the average deposit was $150.06 million during 1834-1863. The median depositfor the banks was $112.5 million. The minimum deposits and the maximum deposits of banks were $56.00 million and $394.80 million respectively. The high standard deviation of $85.00 suggests bank deposits fluctuated a lot around the mean deposit of $150.06 million.The low probability (0.06) of Jarque Bera suggests the series is not normally distributed.

Deposits were expected to positively correlate to the bank development unless there was a fear of bank failure and deposit losses. It is expected that the higher the deposits the higher the number of bank development, ceteris paribus.

Population

Like any nation, America underwent demographic changes from high to low level of fertility and mortality at the beginning of the 19th century. The American population growth is presented in Table 2.

Table2Growth Rate of American Population: 1830-1860

Year	Density Per Square Mile	Percentage of Growth
1830	7.4	33.5
1840	9.4	32.7
1850	7.9	35.9
1860	10.6	35.6

Source: U.S. Bureau of the Census, Vol. 1 (2006). Statistical Abstract of the United States (2002)

America not only underwent demographic changes but changes were also noticed in the character of its labor force. In 1800, about three fourths of the labor force was engaged in agriculture. More than 50 percent of the labor forces were slaves and a majority of them were engaged in tobacco and food cultivation.In 1860 the American labor force underwent changes in many ways before the Civil War. The most significant change was noticed in the character between the labor force of the North and the South. In the south, as the slave price was soaring, asset holders were investing in slavery.Slave labor became highly profitable due to the increased value of cotton production and the innovation of the cotton gin. The Industrial Revolution in textile made cotton "King". The cotton cultivation in the South—South Carolina, Georgia, Alabama, Mississippi, and Louisiana—made slavery a firmed and dominant institution.In the north, on the other hand, the self-employed family enterprise and free labor constituted a dominant labor force. The wave of the British Industrial Revolution touched the North where manufacturing began to grow. Due to the improvement in internal transportation, the northern labor force began to move out of agriculture into the manufacturing industry during the first half of the 19th century. The descriptive statistics of population growth, in Table 1, shows that the average population was 22.91 million during 1834-1863. The median population was 22.14 million. The minimum population and the maximum population were 14.36 million and 33.36 million respectively. The standard deviation of 6.00 million suggests population fluctuated around the mean population of 22.91 million. The high probability (0.33) of Jarque Bera suggests the series is normally distributed.

EconomicGrowthPer capital GDP

During the antebellum period 1820-1860,the US economy was transformed from an 'underdeveloped nation of farmers and frontiersmen into an urbanized economic powerhouse' (www.sparknotes.com). American economy exhibited two distinct characteristics during these periods.North began to industrialize. The early industrialization, revolutionized by Samuel Slater who returned from England with textile experience, began with the textile industry in New England. The replication of British Textile began as early as 1787 and 1789 when cotton manufacturing began to operate in Massachusetts; and fully mechanized mills installed in Rhode Island.Manufacturing advances and production were not limited to the textile industry alone. Similar advances took place in other industries such as equipment, machinery, furniture, paper, and paints. Thus, the North experienced a manufacturing boom during 1830-1860 after Eli Whitney invented the cotton gin, in particular. Cyrus McCormick's invention of the mechanical power-reaper revolutionized the production in the West. The development in the manufacture of equipment and machinery contributed agricultural growth in the South and Midwest.

The South, on the other hand, heavily concentrated on agriculture during the antebellum period. The cotton cultivation was very profitable when the manufacturing boom took place in the North. As the agriculture of the South was dependent on slave labor, the demand for slave labor increased in the pursuit of cotton production. After the Revolution War, the country needed unification and connection of different regions and cities. Thus, the construction of railroads, roads, and canals began. The railroad construction boom started in the 1830s and continued until the Civil War. The railroads connected to various parts and cities.

At the end of the 1850s, the Eastern coast and the Great Lakes were connected to the western side of the Mississippi and Chicago by the railroads.By the end of the 1840s not only was the Erie Canal linked to Lake Erie, more than 10,000 miles of turnpikes were operating (WWW.historynet.com). Travel times significantly reduced before the Civil War. The impact of transport development on travel times can be seen in Table 3.

Table 3 Travel times between New York City and Selected Cities: 1800-1857

	Boston	**Charleston**	**New Orleans**	**Chicago**	**San Francisco**
Year	Days	Days	Days	Days	Days
1800	4.0	10	27	42	More than 42
1830	1.5	6	14	19	More than 42
1857	Less than 1	2	5	2	28

Source: Carter and Sutch (2006)

The improvement in transport services such as railroad, steamboat, and road services allowed goods and crops to move easily and cheaply between the manufacturing North and the agricultural West and South.Due to the development of banks, transport, population growth, and industrial boom in the North and increased agricultural production in the West and South, the American economy experienced economic growth during the antebellum period. The per capita GDP increased over the periods.The descriptive statistics of per capita GDP growth, in Table 1, shows that the average per capita GDP was $1,873.56 million during 1834-1863. The median per capita GDP was $1,793.00 million. The minimum per capita GDP and the maximum per capita GDP were $1,594.00 million and $2,341.00 million respectively. The high standard deviation of $219.64 suggests per capita GDP fluctuated a lot around the mean per capita GDP of $1,873.56 million. The high probability (0.26) of Jarque Bera suggests the series is not normally distributed

III Survey of Literature

The survey of literature finds no studies that dealt with the determinants of bank development during the antebellum period. The paper, thus, provides an important contribution in the banking literature by identifying the determinants of bank development.There are studies dealing with determinants of foreign banks. Ahmed and Rosly (1995) study the factors determining the foreign banks' activity measured in branch offices and assets in Malaysia and they found the foreign bank trade financing did not benefit from the Malaysian economic growth. Marashdeh (1994) used the Grosse and Goldberg (1991) model for testing determinants of the number of offices of foreign banks in Malaysia and found that the size of the bank in the country of origin, trade volume with Malaysia and country risk were positively related to foreign banks' presence in Malaysia. According to Tallman (1988),a bank establishment in a foreign country is a direct foreign investment. He found that a direct investment is positively correlated with market size and is negatively correlated with political risk.Grosse and Goldberg (1991) examined the foreign bank determinants in the US and found that the presence of foreign banks was positively related to a foreign direct investment, foreign trade, and the size of the banking sector in the home country.There are studies that dealt with the determinants of bank profitability, bank credit, and bank performance. A few of them are mentioned here. Molyneux and Thornton (1992) examined the determinants of bank profitability with a set of countries and found that the return on equity and interest rates of the country are positively related with profitability. Basir (2000) examined the determinants of Islamic bank profitability of the Middle Eastern Countries and found that bank internal and external were important factors for bank profitability. Imran and Nishat (2013) empirically tested the determinants of bank credit in Pakistan and found that factors such as foreign liabilities, domestic deposits, economic growth, and exchange rates were significant determinants of bank credit.

IV Data and MethodologyData

Time series data: 1834-1863 are used for all variables. Bank development i.e. thenumber of banks and the bank specific data such as assets, deposits, and loans are obtained from the Historical Statistics of the United States (Colonial Times to 1970, Department of Commerce, Bureau of Census, Part 2. (1949). The data for population was obtained from US EX. Doc 38th Congress, 2nd Session 1864, Serial # 1222. GDP and export data is obtained from the Historical Statistics of the United States, Millennial Edition, Cambridge University Press, 2006.

Methodology

The study uses two types of factors for determining the development of banking firms. Bank external factors are factors which are outside the control of banks. This study uses, among external factors, population, exports and gross domestic product (GDP).Bank internal factors are those factors which are within the control of a bank.

There are many internal factors. Based on a bank's balance sheet, there are two categories of internal factors: the internal factors of assetare loans, investments, and cash in hand. On the other hand, the liability side of internal factors is deposits, capital, etc.Based on external factors and internal factors, four basic regression models are tested.

Model 1 consists of only bank external factors.

It is:

$BK_t = \beta_0 + \beta_1 Pop_t + \beta_2 GDP_t + \beta_3 EX_t$ Model 1

Model 2 consists of internal factors only as:

$BK_t = \beta_0 + \beta_1 CAPITAL_t + \beta_2 DEPOSIT_t + \beta_3 LOAN_t + \beta_4 TA_t + U_t$ Model 2

Model 3 consists of both external and internal factors as:

$BK_t = \beta_0 + \beta_1 CAPITAL_t + \beta_2 DEPOSIT_t + \beta_3 LOAN_t + \beta_4 TA_t + \beta_5 Pop_t + \beta_6 GDP_t + \beta_7 EX_t + U_t$ (3)

Since the estimate of regression taking all internal and external factors shows near singular matrix error,and perfect collinearity, it leads to Model 3 and 4 as:

$BK_t = \beta_0 + \beta_1 PCGDP_t + \beta_2 EX_t + \beta_3 PBKCAP_t + \beta_4 PCTA_t + U_t$ Model 3

$BK_t = \beta_0 + \beta_1 PCGDP_t + \beta_2 EX_t + \beta_3 PBKCAP_t + U_t$ Model 4

Where BK_t = the number of banks in the year

Pop_t = US population in the year

GDP_t = US Real Gross Domestic Product

EX_t = US Real export

$PCGDP_t$ = Per capita Real Gross Domestic Product in t year

$EXGDP_t$ = Real export in t year

$PBKCAP_t$ = Capital per bankin t year

$PCGDP_t$ = Per capita Real Gross Domestic Productin t year

$PCDEPOSIT_t$ = Per capita Deposits in the yearin t year

PCTA= Per capita total assets

All variables are expressed in natural log for explaining their coefficients in terms of elasticity.

Unit Root Tests

Before applying the regression, all variables are tested for their stochastic nature. Since the publication of Nelson and Plosser (1982), it is widely recognized that most time series macroeconomic variables contain unit root i.e. variable $X_t \sim I(1)$. Testing the presence of a unit is an important concern. The paper, first examines the existence of unit root for all variables by using the augmented Dickey-Fuller (ADF) as:

$$\Delta y_t = \alpha_0 + \beta t + \gamma y_{t-1} + \sum_i^k \lambda i \Delta y_{t-1} + \varepsilon_t \qquad (1)$$

Schwarz Bayesian Criterion (SBC) will be used to determine the lag length or K. The results of ADF are presented in Table 4 in the empirical section.

Structural Break Test

The issue of testing the presence of unit root gained further momentum when Parron (1989) emphasized the importance of structural break while testing the unit root test. The structural break test is needed because the most macroeconomic series suffers some kind of shock i.e. structural break. So, the unit root test is not enough. Perron (1989) argued that conventional unit root tests have low power to reject the null hypothesis of nonstationarity when there is a structural break in the series.

To overcome this problem, Perron (1989) modified the augmented Dickey Fuller (ADF) test by adding dummy variables to account for structural breaks at known points in time. Zivot and Andrews (1992) suggested that structural breaks in the series may be endogenous and they extended Perron's methodology to allow for the endogenous estimation of the break date. We employ the following two alternative models proposed by Zivot and Andrews (hereafter ZA) to examine the presence of unit root with structural break in the stock market price series:

Model C: $\Delta BK_t = \mu + \emptyset DU_t (\lambda) + \beta t + \gamma DT(\lambda) + \alpha BK_{t-1} + \Sigma C_i \Delta BK_{t-j} + \varepsilon_t$ \qquad (2)

where BK_t indicates number of banks, DU_t and DT_t are indicator variables for mean shift and trend shift for the possible structural break-date (*TB*) and they are described as following:

$$DT_t = \begin{cases} t - TB & \text{if } t > TB \\ 0 & \text{otherwise} \end{cases}$$

The null hypothesis of unit root ($\alpha=0$) can be tested against stationary with structural breaks ($\alpha<0$) in Equations 1 and 2. Every time points are considered as a potential structural break date in the ZA unit root test and the break date is determined according to minimum one-sided t-statistic. Results of Zivot-Andrew test are provided in Table 4.

V Empirical Results and Conclusion

Table4ADF Unit Root test and Zivot-Andrew Unit Root with structural Break

ADF test (intercept and Trend) Null hypothesis: Variable has unit root Lag Length: (Automatic-based on SIC, Maxlag= 7			Zivot-Andrew Unit Root test with a structural Break Chosen Lag length: 1 (Max lag=4)	
Variables	Level (t-Statistics)	1st difference (t-Statistics)	t-Statistics	Break point
LNBK	-2.07	-6.37*	-6.09*	1854
LNEX	-2.49	-5.77*	-3.38	1847
LNPCGDP	-2.64	-4.47*	-3.93	1843
LNBKCAP	-1.13	-3.99*	-3.59	1842
LNPCDEPOSIT	-1.58	-5.64*	-4.27	1844
LNPCTA	-1.74	-6.30*	-8.33*	1843
LNPOP	-0.94	-0.54	-3.35	1859

*= Significant at 1 percent level, ** = Significant at 5 percent level, and *** = Significant at 10 percent level.

ADF test results, in Table 4, show that all variables have unit root at level i.e. they are not stationary at level. However, all variables are stationary at first difference except POP (population). The null hypothesis that the variables have Unit Root at 1st difference isrejected at a significant level of 1 percent. Results of Zivot-Andrew Unit Root test with a structural break supports the results of ADF test except for BK and PCTA. The structural break for each variable is mentioned in the column of break point.

Table5Empirical Results of Model 1 and Model 2[3]

Model 1		Model 2	
Variables	Coefficient	Variables	Coefficient
Constant	1.86(0.71)	Constant	2.12(012)
LNGDP	0.21(0.79)	LNCAPITAL	0.55(0.020**
LNEX	0.40(0.05)**	LNDEPOSIT	0.30(0.002)*
LNPOP	0.21(0.83)	LNOAN	0.0004(0.37)
R^2	0.82	LNTA	-0.0001(0.55)
Adj R^2	0.77	R^2	0.91
F-statistics	35.19(0.0000)	Adj R^2	0.90
Schwaz Criteria	-0.58	F-statistics	71.42(0.0000)
D.W	0.81	Schwaz Criteria	-1.53
		D.W	0.92

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[3] Model 1 contains only external variables whereas Model 2 contains only bank internal variables

The number in the parenthesis is probability.

Model 1 shows that the signs of the coefficient of all variables are consistent as was outlined in Section IV. However, among the external variables, US exports, EX is found to be a significant factor for the development of the number of banks. The R^2 = 0.82 of Model 1 suggests that 82 percent of the bank development is explained by these variables. F-statistics provides a test of overall significance. The probability = (0.0000) of F-statistics (35.29) suggests that the joint coefficientsof all variables are significantly different than zero. The low statistics, 0.81, of D.W (Durbin Watson) suggests that there is no serial correlation.Model 2 shows that the signs of the coefficient of all variables are consistent, except for LNTA, as was outlined in Section IV. However, among internal variables, bank capital (LNCAPTAL) and bank deposit (LNDEPOSIT) are found to be the significant factors for the development of the number of banks.The R^2 = 0.91 of Model 2 suggests that 91 percent of the bank development is explained by these variables. F-statistics provides a test of overall significance. The probability = (0.0000) of F-statistics (72.42) suggests that the joint coefficients of all variables are significantly different than zero. The low statistics, 0.92, of D.W (Durbin Watson) suggests that there is no serial correlation.

Table5Empirical Results of Model 3 and Model 4[4]

Model 3		Model 4	
Variables	Coefficient	Variables	Coefficient
Constant	-9.78(0.0000)*	Constant	-4.94(0.02)**
LNPCGDP	0.64(0.04)**		0.97(0.006)*
LNEX	0.17(0.04)**		0.18(0.6)***
LNPBKCAP	0.84(0.0000)*		0.62(0.0000)*
LNPCTA	-0.008(0.004)*		
R^2	0.96	R^2	0.97
Adj R^2	0.96	Adj R^2	0.94
F-statistics	175.83(0.0000)	F-statistics	173.77(0.0000)*
Schwaz Criteria	-2.22	Schwaz Criteria	-2.01
D.W	1.65	D.W	1.40

Results, in Model 3, show that the signs of the coefficient of all variables are consistent as was outlined in Section IV except for LNPCTA. All variables i.e. per capita GDP (LCPCGDP), export (LNEX), Per capita bank capital (LNPBKCAP), and per capital total asset (LNPCTA) are found to be the significant factors for the development of the number of banks. The R^2 = 0.96 of Model 3 suggests that 96 percent of the bank development of the antebellum period is explained by these variables. F-statistics provides the test of overall significance of the regression. The probability = (0.0000) of F-statistics (175.83) suggests that the joint coefficients of all variables are significantly different than zero. The low statistics, 0.81, of D.W (Durbin Watson) suggests that there is no serial correlation.Results, in Model 4, show that the signs of the coefficient of all variables i.e. per capital GDP (LNPCGDP), US exports (LNEX), and per capita bank capital (LNPBKCAPIT) are consistent, as outlined in Section IV, and are significant at level of 0.6 percent, 6 percent, and 0.000 percent restively. The coefficients, 0.97 and 0.62 for LNPCGDP and LNPBKCAP respectively suggests that the elasticity of bank development (bank number) is inelastic. Every one percent increase in per capita GDP and bank capital of the antebellum era led to the increase of bank number by 0.97 percent and 0.64 percent respectively. On the other hand, every one percent increase in the US export led to the increase of the bank number by 0.18 percent.

The R^2 = 0.97 of Model 4 suggests that 97 percent of the bank development is explain by these three variables. The probability, 0.0000 of F-statistics =173.77, suggests that the joint coefficients of all variables are significantly different than zero. The low statistics, 0.92, of D.W (Durbin Watson) suggests that there is no serial correlation.The paper provides policy prescriptions. Since all models, in this paper, suggest that per capita GDP, US exports, and per capita bank capital are positively related to the development of bank numbers and are significant factors, bank regulators should pay serious attention to these factors before granting bank license; and the organizers of a De Novo bank must look at capital and per capita GDP of the area seriously before applying for a new bank.

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[4] Model 4 contains both external and bank internal variables whereas Model 5 contains internal as well as external variables that have no correlation among them.

Conclusion

The paper examines the records of bank development (number of banks), per capital GDP growth, US exports, per capita bank capital, bank assets, and bank deposits during the antebellum period, 1834-1863 in particular, for ascertaining the determinants of bank development.The paper used the regression method with time series data in finding the determinants. Since the data are time series, ADF Unit Root and test and Zivot-Andrew Unit Root test structural break are tested.Model 1 exclusively used external factors and Model 2 used exclusively bank internal factors. Model 3 and Model 4 combined both external and internal factors. Results show that among the external factors per capital GDP and US export are significant factors for the development of the number of banks. Among internal factors, per capita bank capital is found to be the most significant factor for the development of banks during the antebellum period.The significance of these factors suggests that bank regulators should pay serious attention to these factors before granting bank licenses; and the organizers of a De Novo bank must look at capital and per capita GDP of the area seriously before applying for a new bank.

References

Ahmed, Khan Masoos. and Saiful Azhar B. Rosly. (1995). Determinants of Foreign Bank activity in Malaysia, International Journal of Developing Banking, 13 (1) 25-34.

Basir, A. (2000). "Assessing the performance of Islamic Banks: Some Evidence from the Middle East", Paper presented at the ERF 8th meeting in Jordan.

Kevin Dowd, 1992

Grosse, R. and L.G. Goldberg. (1994). Foreign bank activity in the United States: An Analysis by Country of Origin, Journal of Banking and Finance, 15 (6), 1093-1112.

Historical Statistics of the United States (Colonial Times to 1970), Department of Commerce, Bureau of Census, Part 2.USA, 1949.

Historical Statistics of the United States, Millennial Edition, Cambridge University Press, 2006

Imran, Kashif. and Mohammed Nishat. (2013). "Determinants of Bank Credit in Pakistan: A supply side approach", Economic Modelling, 35, 384-390.

(Knox, 1903).

Marashdeh, Omar. (1994). Foreign banks activities and factors affecting their presence in Malaysia, Asia Pacific Journal, 11 (1), 113-123.

Molneux, P. and J. Thornton. (1992). "The determinants of European bank profitability", Journal of Banking andFinance, 16, 1173-1198.

Nelson, C. and C. Plosser. 1982. "Trends and Random Walk in Macroeconomics Time-series: Some Evidence and Implications", *Journal of Monetary Economics*, 10, pp. 139-162.

Perron, Pierre. (1989). "The Great Crass, the oil price shock, and the unit Root Hypothesis", Econometrica, 57: 1631-1401.

Rashid, Salim. And Abdus Samad. 2010. "Banking and Monetary Policy", Encyclopedia of U.S. Political History, Vol.3, pp. 47-50.

Tallman, S. (1988). Home country political risk and Foreign direct investment in the United States, Journal of International Business Studies, (Summer), 219-234.US EX. Doc 38nd Congress, 2nd Session 1864, Serial # 1222

Zivot, Erick. And W. K. Donald Andrew. (1992). "Further Evidence on the Great Crass, the oil price shock, and Unit Root Hypothesis", Journal of Business and Economic Statistics, 10: 251-270.