The Impact of Inflation on Financial Development

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Abstract: This paper scrutinizes the impact of inflation on financial development in the case of Pakistan for the period of 1991-2011. In order to do so, Regression and Correlation methods have been applied. Experimental findings expose that high trends of inflation delay the performance of financial markets. GDP per capita promotes the development of financial sector through its causing channels. Three indicators namely money supply, total level of deposits, BCPS (bank credit to private sector) represent the financial development in Pakistan. There is a negative relationship between inflation and financial development.

Keywords: Inflation, Financial Development, macroeconomic factors, Pakistan

1. INTRODUCTION

This paper considers the correlation between inflation and financial development in the case of Pakistan for the period of 1991-2011; for the long run and in the short run. Economic theory exposes that developed financial sector activates savings efficiently and reallocates the resources to productive projects and, hence, stimulate economic activities in the country. The efficiency of financial sector gets worse due to the high rate of inflation through financial market frictions and slows the economic performance down. Governments are prejudice to enforce additional tax burden on the financial sector to decrease their budget deficit in inflationary periods (Bencivenga and Smith, 1993). It is examined that inflation blocks the performance of inflation markets by decreasing the level of investment in the economy.

The main purpose of this study is to examine the connection between inflation and financial performance by utilizing Regression and Correlation method employing time series annual data. There is an abundant and substantial body of evidence that represent expecting high rates of inflation to have unfavorable consequences either for an economy's long-run rate of real increase or for its long-run level of real movement. This finding raises an obvious question. By what mechanisms does increase in inflation rate affect output in a long run? The relationship between inflation and financial performance has not been studied for Pakistan.

A growing theoretical literature explains mechanisms whereby even expected increases in the rate of inflation interfere with the capacity of the financial sector to assign resources effectively. More specifically, recent theories give emphasis on the importance of informational asymmetries in credit markets and demonstrate how an increase in the rate of inflation have an adverse effect on credit market frictions with negative consequences for financial sector (banks and equity market) performance and therefore long-run real activity (Huybens and Smith 1998, 1999). In some cases, once the rate of inflation goes beyond the critical level, perfect foresight dynamics do not let an economy to converge to a solid state demonstrating either an active financial system or a high level of authentic activity. When this happens, further increases in inflation have no additional detrimental effects on the financial system. Thus, in effect, these models entail that once the rate of inflation touches a particular critical threshold, "all of the damage to the financial system has already been done." Further increases in inflation will have no additional consequences for financial sector performance or economic growth.

1. Higher rates of inflation are connected with greater inflation and stock return variability.
2. Higher inflation entails less long-run financial activity. In markets with high inflation, intermediaries will lend less and designate capital less efficiently, and equity markets will be smaller and less liquid.
3. Numerous inflation thresholds may describe the relationship between inflation and financial sector conditions. Most significantly, once inflation goes beyond a critical point, incremental

increases in the (long-run) rate of inflation may have no additional impact on financial sector activity.

4. Higher long-run inflation entails lower long-run levels of real activity and/or slower long-run growth rates.

This paper calculates these theoretical predictions regarding the impact of predictable inflation on the financial system. We focus on the links between sustained inflation and financial sector performance because a large and growing literature already proves that the financial system influences long-run rates of economic growth.

Methodologically, we also scrutinize potential non-linearity in the data and consider other theories regarding the relationship between inflation and financial sector performance. One alternative theory is a fiscal story: governments unite high inflation with various restrictions on the financial sector to help fund expenditures. As a result, they have both inadequately developed financial systems and high inflation. A second story is a purely passive one: higher growth (whose sources may be sought elsewhere) entails lower inflation, *ceteris paribus*. If financial services are a standard good, higher real activity also involves that quickly growing economies have more quickly developing financial systems than slower growing economies. Hence, when viewed over long periods, there may be a negative relationship between inflation and financial development from this source alone.

1. There is a strong relationship between inflation and lending by the financial sector to the private sector.
2. The data powerfully support the presence of a nonlinear relationship between inflation and financial sector performance, perhaps driven by threshold rates of inflation. As inflation increases, financial sector performance decreases, but the marginal impact of additional inflation on the financial sector also reduces quickly. Thus, we discover that once the average rate of inflation goes above 15 percent per year, financial sector performance drops suddenly, but at the same time, incomplete correlation between inflation and measures of mediator or equity market activity fundamentally disappears.

2. LITERATURE REVIEW

It is relatively well-established that inflation delay long-run economic growth and distorts macroeconomic stability. De Gregorio (1993), Fischer (1993), Barro (1998), Bullard and Keating (1995), Clark (1997), Bruno and Easterly (1998), and Fischer (2005) confirm that average levels of inflation offset the Mundell-Tobin effect, consequently having a detrimental impact on economic growth. Similarly, Cooley and Hansen (1989) and De Gregorio (1993) conclude that high levels of inflation decrease the labor supply and hence economic growth.

Inflation has an adverse effect on capital accumulation and investment and deteriorates income distribution (Shahbaz et al. 2010). Goldsmith (1969), McKinnon (1973), King and Levine (1993), Levine and Zervos (1998), Beck et al. (2000), and Beck and Levine (2004) suggest that Financial development has a positive impact on long-run economic growth. Bonfiglioli (2006), Bittencourt (2007) and Shahbaz and Farid (2011) conclude that financial development seems to decrease either income inequality or poverty through physical capital formation and economic growth.

Boyd and Champ (2003) discover that inflation damages economic growth through declining financial development, especially by damaging the operation of financial markets. Maksimovic (1998) reports a positive relationship between inflation and financial crisis and explains this with frictions in financial markets. According to Mundell (1963) and Tobin (1965), portfolio allotments are prejudiced by inflation due to low returns on capital leading to improvements in investment activities. This situation spurs growth process in the economy. In the same way, English (1999) argues that higher rates of inflation force the individuals to surrogate purchased transaction services for money. This not only expand the supply of financial services and stimulate financial development as well.

On the empirical surface, English (1999) gives empirical evidence and concludes that inflation has a positive result on financial development. In contrast, Haslag and Koo (1999), and Boyd et al. (2001) conclude that high rates of inflation adversely affect financial development as predicted theoretically. A recent case study of Brazil by Bittencourt (2007, 2011) using time series and panel data concludes that high inflation has a positive impact on financial development due to poor macroeconomic performance. In the case of Zimbabwe, Murombedzi (2008) reports that enlarged inflation damage the development of financial institutions through troubling channels. Correlation in such case is found to be feeble.

The studies also discover a non-linear relationship between both variables and recommend a particular threshold i.e. 15 percent per year. Conversely, Khan et al. (2006) differ with previous threshold level by

suggesting a new threshold point with the disagreement that the threshold level of inflation is about 3-6 percent and away from this point, inflation has a strong adverse impact on the development of financial sector. Whereas Boyd et al. (2001) consider that inflation has negative but minimal impact on financial development. Naceur and Ghazouani (2007) using GMM approach report that inflation deteriorates financial development and financial development increases as inflation goes beyond the threshold point. Kim et al. (2010) investigate long and short run effect of inflation on financial development using Pooled Mean Group estimator developed by Pesaran et al. (1999) for 87 countries over the period of 1965-2005. Their results signify that inflation has an inverse impact on financial development in the long run while positive effect in a short span of time.

3. RESEARCH METHODOLOGY

3.1 Data Collection

The data used in this study is secondary in nature and obtained from the Website of World Bank and different other sources, over the period of 1991-2011. All the parameters used in this study (GDP, Inflation, SS, Trade, BCPS, MS, Deposit) and their definitions are given below.

3.2 Operationalization of Variables

The following tables shows the way the variables are operationalized in this study.

Table 1: Variable definitions

Variables	Definitions
Inflation	The rate at which the general level of prices for goods and services are rising, and, subsequently, purchasing power is falling
Trade	The action of buying and selling goods and services, it is the combination of Exports and Imports measured in Billions of US Dollars.
Social Spending	Social Spending is measured through the percent of the share of the GDP and measured in Billions of US Dollars.
Gross Domestic Product (GDP)	The GDP is measured through Billions in US Dollars.
Bank credit to private sector as per share of GDP (BCPS)	BCPS is measured through the advances to private sector in billions of US dollars.
Money supply (MS)	The MS is measured through the entire stock of currency and other liquid instruments in a country's economy and measured in Billions of US Dollars.
Deposits	A sum of money placed or kept in a bank account, usually to gain interest measured in Billions of US Dollars.

3.3 Hypothesis

H₀: There is no relationship between Financial Performance and Inflation

H_A: There is a significant relationship between Financial Performance and Inflation.

3.4 Regression Equation

The regression equations for the study is as below:

$$BCPS = \alpha_0 + \beta_1 Trade + \beta_2 Inf + \beta_3 SS + \beta_4 GDP + \varepsilon$$

$$MS = \alpha_0 + \beta_1 Trade + \beta_2 Inf + \beta_3 SS + \beta_4 GDP + \varepsilon$$

$$Deposits = \alpha_0 + \beta_1 Trade + \beta_2 Inf + \beta_3 SS + \beta_4 GDP + \varepsilon$$

CPS denotes the Bank Credit to Private Sector. MS is for Money Supply and similarly the SS denotes the Social Spending and GDP is Gross Domestic Product and ε for a residual term.

3.5 Research Model

The following diagram shows the graphical representation of the research model of this study.

Figure 1: Research Model

4. DATA ANALYSIS

This table shows the descriptive statistics of all the variables. The first variable GDP has 21 observations and the mean of the variable is 96.9886 with standard deviation of 51.14554. The maximum and minimum value of this variable is 45.45, 213.69 respectively. Inflation is the second variable used in this study and the maximum and minimum value of this variable is 2.90 and 20.30 respectively. The mean of inflation is 9.2143 and standard deviation is 4.37508. The third variable BCPS (Bank Credit to the private sector) has also 21 observations with mean value of 22.6898 and standard deviation of 12.38854. The maximum value of this variable is 9.75 and the minimum is 47.84. The fourth variable of this study is MS (Money Supply). The mean of MS is 3.4567 and maximum value is 43827.0. Minimum value is 9.76 and standard deviation is 2.65700. There is the fifth variable used in this study called deposit.

Table 2: Descriptive Statistics

		Maximum	Minimum	Mean
GDP	21	45.45	213.69	96.9886
INF	21	2.90	20.30	9.2143
BCPS	21	9.75	47.84	22.6898
MS	21	43827.00	9.76E5	3.4567E5
Deposit	21	14.34	72.88	35.3028
CPI	21	2.90	20.30	9.2143
SS	21	.32	1.92	.8000
Trade	21	16.13	67.53	32.5440

The mean of the variable is 35.3028 with standard deviation of 19.20750. The maximum and minimum value of this variable is 14.34 and 72.88 respectively. The mean of the sixth variable CPI (consumer price index) is 9.2143 with standard deviation of 4.37508. The minimum value of this variable is 20.30 and maximum is 2.90. The maximum and minimum value of the seventh variable SS (Social Spending) is .32 and 1.92 respectively with the mean value of .8000 and standard deviation of .50345. The mean of the seventh variable trade is 32.5440 with standard deviation of 16.62513. The minimum and maximum value of this variable is 16.53 and 67.13 respectively.

4.1 Correlations

The table 3 represents the correlation among the variables. There is a positive correlation between GDP and macro-economic variables; the first macroeconomic variable BCPS (bank credit to the private sector) has a significant positive relationship on GDP. Due to this relationship, the overall economy of the country gets and the banks have more funds to lend to the private sector. The BCPS has a positive relationship with inflation and CPI; it is significant and this result is the same as the research conducted by (Bilal Sharif, 2013). However, BCPS has a negative relationship with MS (money supply). There is a positive correlation between BCPS and SS (social spending), and it is highly significant. When the social spending increases, deposits in banking sector increases. Therefore, banks have more money to lend to

private sector. Similarly, the first macroeconomic variable BCPS has also a positive relationship with trade and it is highly significant. When trades increases, banks has more deposits to lend to the private sector.

Table 3: Pearson Correlation

		GDP	Inf	BCPS	MS	Deposit	CPI	SS	Trade
GDP	Pearson Correlation	1	0.421	.950**	-0.332	.990**	0.421	.983**	.990**
	Sig. (2-tailed)		0.057	0	0.142	0	0.057	0	0
	N	21	21	21	21	21	21	21	21
Inf	Pearson Correlation	0.421	1	.452*	0.403	.477*	1.000**	.477*	.495*
	Sig. (2-tailed)	0.057		0.04	0.07	0.029	0	0.029	0.022
	N	21	21	21	21	21	21	21	21
BCPS	Pearson Correlation	.950**	.452*	1	-0.268	.975**	.452*	.927**	.964**
	Sig. (2-tailed)	0	0.04		0.241	0	0.04	0	0
	N	21	21	21	21	21	21	21	21
MS	Pearson Correlation	-0.332	0.403	-0.268	1	-0.291	0.403	-0.298	-0.26
	Sig. (2-tailed)	0.142	0.07	0.241		0.2	0.07	0.189	0.254
	N	21	21	21	21	21	21	21	21
Deposit	Pearson Correlation	.990**	.477*	.975**	-0.291	1	.477*	.979**	.995**
	Sig. (2-tailed)	0	0.029	0	0.2		0.029	0	0
	N	21	21	21	21	21	21	21	21
CPI	Pearson Correlation	0.421	1.000**	.452*	0.403	.477*	1	.477*	.495*
	Sig. (2-tailed)	0.057	0	0.04	0.07	0.029		0.029	0.022
	N	21	21	21	21	21	21	21	21
SS	Pearson Correlation	.983**	.477*	.927**	-0.298	.979**	.477*	1	.983**
	Sig. (2-tailed)	0	0.029	0	0.189	0	0.029		0
	N	21	21	21	21	21	21	21	21
Trade	Pearson Correlation	.990**	.495*	.964**	-0.26	.995**	.495*	.983**	1
	Sig. (2-tailed)	0	0.022	0	0.254	0	0.022	0	
	N	21	21	21	21	21	21	21	21

Money supply is the second macroeconomic variable. There is a significant positive relationship between inflation and money supply. When money supply increases, inflation increases because the general price level increase. There is a negative relationship among money supply and GDP, trade, deposits, BCPS, S.S.

The third macroeconomic variable is deposits. There is a positive relationship between trade and deposits and it is highly significant. Trades are being operated through the banks thus inflow of cash increases. Further, deposits of the banks increases. The relationship between deposits and BCPS is also positive and highly significant. When deposits increase, the bank has more funds to lend. The relationship between deposits and GDP is positive and highly significant. When the GDP increases, people have more money for deposits and deposits of banks increase.

4.2 Regression

The relationship between the dependent variable BCPS (Bank Credit to private Sector) and trade has a positive impact on financial development and highly significant. The coefficient of trade is .006 that means one unit increase in trade then 0.006 increases in BCPS. Trade increase is obvious that the private sector needs more money for imports and exports so banks lend fund to private sector to fulfill their trade obligations.

Table 4: Regression Analysis (Dependent Variable: BCPS)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.493	2.468		-1.010	.328
	GDP	-.037	.138	-.153	-.267	.793
	Inf	-.159	.239	-.056	-.663	.517
	SS	-14.842	8.662	-.603	-1.714	.106
	Trade	1.294	.409	1.736	3.167	.006

Table 5: Regression Analysis (Dependent Variable: Deposit)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.405	1.512		-1.591	.131
	GDP	.117	.085	.312	1.384	.185
	Inf	.031	.147	.007	.211	.836
	SS	-2.344	5.306	-.061	-.442	.665
	Trade	.858	.250	.743	3.428	.003

There is a positive relationship between deposit and trade and it is highly significant. The coefficient of trade is 0.003 meaning that one unit increase in trade is 0.003 unit increase in deposits. It is obvious that trades are being operated through the banks, so the inflow of cash increases, and thus deposits of the banks rises. The relationship between the deposit and GDP has a positive impact of financial development. The coefficient of the GDP is .117 meaning that one unit increase in GDP is.117 increases in deposits. When the overall economy of the country is sound, deposits must be increased. The relationship between inflation and deposit is positive. The coefficient of inflation is .031 meaning that one unit increase in inflation is .031 increases in deposits. When there is inflation in the country due to high interest rates set by government monetary policy, private sector is not interested to take the loan, outflow of the money is on the low level, and so deposits of the banks are not affected.

Table 6: Regression Analysis (Dependent Variable: MS)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	235786.609	159529.365		1.478	.159
	GDP	-7582.580	8942.182	-1.460	-.848	.409
	Inf	34108.543	15465.900	.562	2.205	.042
	SS	-352284.377	559891.524	-.668	-.629	.538
	Trade	24977.216	26408.834	1.563	.946	.358

The relationship between money supply and inflation is positive and significant. The coefficient of inflation is 34108.543 meaning that one unit increase in inflation is 34108.543 increases in money supply. If there is an increase in money supply, general price level increases and causes inflation in the end. The coefficient of trade is 24977.216 meaning that one unit increase in trade is 24977.216 increases in money supply. The relationship between money supply and trade has a positive impact on financial development.

5. CONCLUSION

The researcher examined the relationship between financial development and inflation in Pakistan over the period of 1991-2011. The study found a negative effect of inflation on financial development in Pakistan. Three financial development indicators namely money supply, deposits, BCPS (Bank Credit to Private Sector) were used. The relationship among money supply, deposits, inflation and financial development is positive and significant. However, only one indicator that is BCPS (Bank Credit to Private Sector) has a negative relationship and found insignificant. The present study also confirms that there is inverse correlation between financial development and inflation in the case of Pakistan. We report that inflation reduces the efficiency of the financial sector in long runs and short runs.

Financial sector can improve its performance through policies and developments. Economic growth also promotes financial development. Social spending improves the performance of financial sector in the long run. Government should originate appropriate steps to control inflation in the country to get the fruit from financial sector's development.

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