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Analyzing the Impact of Macroeconomic Variables on Financial Stability: Evidence from South Asian Economies

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Abstract

This research examines whether macroeconomic variables disturb the financial stability of SAARC countries in 1996-2022 using panel ARDL approach. We shape the financial stability as the dependent variable, and we have developed a PCA index of financial stability (principal component analysis). This study contains of macroeconomic models with a wide choice of possibly related variables for financial stability, using financial flows, financial openness, macroeconomic stability, exchange rate and economic growth on a sample of five countries between 1996 and 2022. Our experimental suggestion proposes that most of the macroeconomic variables have a positive impact on financial stability. Therefore, our outcomes support the view that the development of macro-economic policies and political programs should be part of financial improvement. All these variables may enhance the financial stability of the countries which are under consideration.

Keywords: South Asian, Macroeconomic Variables, ARDL, PCA, SAARC, financial openness, macroeconomic stability, exchange rate, economic growth

1. Introduction

Stable performance of different market components in financial structure is called financial stability for example payments, settlements, markets, financial organizations and payment structures (Cihak, 2007; Oosterloo & De Haan, 2004). Quintyn & Taylor, (2003) claim, for example, that "the regulatory and supervisory independence (RSI) - both of government and industry is important to accomplishment and store Financial Sector Stability." Better freedom from exterior political burden indicates that the central bank is not necessary to dodge financial problems, which must permit the bank to action sooner and extra definitively earlier a crisis occur (Cihak M., 2007). Political intervention in the supervisory procedure taking to controlling holiday has become a main feature subsidizing to the failing of the banks before the crisis, according to Quintyn and Taylor (2003), nearly all universal financial sector disaster of the 1990s.

Financial stability is tough to define the idea, as definite by indication, almost no clear description exists and often opposing concepts, financial instability, is commonly castoff. The main purpose of this trouble is that the power "stability" at first due to the absence of instability is not necessarily bad for financial markets. Previously, the development of an explanation of the financial stability of the work, would be appropriate to study the following thoughts as a basis or as thoughts and related drawings.

First, a barter economy is less active and efficient allocation alerts means that the economy is the possibility to use financial flames in the next current resources. A disagreement of financial stability must fundamentally make the room in the context of a monetary economy in which there is a currency (the company will usually fiat money) that is generally known as a unit of account in the economy and the source of payment.

Second, the money does not routinely stores the most mandatory values, except in the very short term, or in conjunction with financial difficulties and dysfunctions event. Throughout the known history of the evolutionary process of the human imagination motivated financing unfaithful hard deficit. Existing finance the payment of the money they provide initial and modifiable intertemporal method of payment and a store of value equipment. Refunds are promised the compensation money to go and our strategy to partially mitigate the inter-temporal dispersion of resources.

Third, numerous of the facilities providing through money and finance are both isolated and free things. They are isolated goods given the prosperities toward the individual in their isolated affaires, welfares that take solitary towards the pairs involved in definite productions. They disjointedly and jointly offer public as well, as they allow multidimensional trade and interchange become more operative, in portion by removing the want used for Jevons' "double coincidence of wants," together sectorally on instants in period and intertemporal. By calculation, finance provide free goods elsewhere those of fiat money: by augmenting and distributing the public good features of fiat money, finance expands society' opportunity for and effectiveness in-intertemporal economic procedures for example trade, manufacture, wealth crowd, economic progress and development, and finally common prosperity. In some, the general appropriateness of money and the presence of a real procedure of finance composed generate a condition that make available combine revenues to all associates of culture.

Fourth, another important means of foresight and funding is bringing its important characteristics unique obvious. Unlike paper money - which abolishes social trust the section on trade and trade-finance contains the human capacity to compensate for the exact amount of paper money in the next. In this way, finance symbolizes existentially blur (social trust). Recent financial agreement has advanced to provide an important tradition and essentially closing this change important ambiguities hooked "price" calculable threats, such as prevention and side to side of the company's rules (both markets and finance companies), and the market risk , liquidity risk, and so on. Under less than the previous, but not least, the budget law provides people with real, though imperfect tool for change, valuing and allocation economic and financial fears and threats

Finally, as exemplified finance existentially is certainly not uniform and welfares possible prices connected through it. For an indicator, the improvement of public finances and to isolate the profits of fiat money, in part by increasing the cash reserve for the formation, consumption and trade; share and to help improve the efficiency of intertemporal economic approach. Therefore, the tendency to engage in activities (e.g., the leap of faith) and admit the size of the trust) and admit no doubt of faith has shaped public benefits away from what fiat money they could not afford.

The financial crisis of 2007-2009 was the result of loans and real disturbance plantations and its market, and dropped to other organizations, markets and economies, which typically affect fewer institutions flowing. Financial stability in advanced economies is largely determined by the (capital investment, pension funds, separate investment funds, brokerage houses, etc.) Financial status of non-banking organizations. However, in countries where the increase in interactions of stocks, mutual funds, pension funds and insurance companies are immature, and where investment will depend on outdated bank loans, banks are the most important leaders of financial stability and general stability of the economy.

Study mainly useful for identifying extreme financial instability, with a precise financial impact is political or macroeconomic shockwave. From the point of view (Mishkin, 1996) a financial shock is a disturbance in the financial markets that threatens against the elections and the right to build much minor therefore, that the financial places are able to form funds to the professionals greater possibilities of creative investment.

2. Theoratial Framework

The struture of this chapter is as follow: After the introduction of the subject, picture of financial stability in terms of its dimentions, drivers and factors that affect the financial stability described in detail.

2.1 Introduction

In the following section we learned about financial stability its back ground and also discussed the different channels that would affect financial stability. In back ground we would explain that how different factor make financial stability important. Different researchers use different variables that make financial stability important for every economy. In last we describe that how financial stability is affected by the other factors.

2.2 Financial Stability-Conceptual Framework

Financial stability is now a unique key concerns for financial establishments later consecutive financial disasters of the 90th Asia and Latin America. Furthermore, the tragedy of the 2008 subprime exposed the multifaceted nature of present financial schemes. Even though the meaning of financial stability, it appears at first appearance as an easy task, at hand is no agreement among professionals, the correct description is largely theoretical. Andrew Crockett (1996) supports the impression which, in relations of stability of the financial subdivision is necessary to differentiate among the stability of financial organizations and market stability

Although the first references the grade to which organizations achieve their pledged obligations without break or any external sustenance, the stability of financial markets is a "prerequisite for macroeconomic stability and growth" translates into "circulation of information on debtors and fairly constant creditors to overcome the inherent truth irregularities between the two gatherings "(Weber, 2008).

2.3 Dimensions of Financial Stability

Padoa-Schioppa, (2002) described financial stability in a research aimed at Europeon Central Bank as "*a condition where the financial system is able to withstand shocks without giving way to cumulative processes which impairs the allocation of savings to investment opportunities and the processing of payments in the economy*" by way of you can effortlessly discover financial stability is not considered openly solitary the stability of the bank, nonetheless on the other hand, its part in convincing the consistency of the financial division was not diminished.

In the study of Jacobson et al. (2001) financial steadiness is related to bank threat warning, nonetheless can not reduce this kind of action. In addition, a financial plan can be choppy, in spite of a satisfactory distribution of financial assets.

Crockett A., (1997) designated financial stability as the non-appearance of the limits that the possibility of causing economic damage calculable outside a severely small group of consumers and counterparties

In the study, this is significant to describe the financial stability in mind that a financial system that is capable of: (1) assign resources competently; (2) measure and manage financial risks, and (3) to blow the shockwave. (Schinasi, 2009). The same researcher used five main inhabited ideologies focus precious helping to describe financial constancy: (1) Financial stability is a general idea wrapped multiple mechanisms of financial structure, infrastructure, markets, organizations; (2) the financial stability not solitary with the distribution of resources, risk control, using savings, facilitating treasure of the collection, expansion and development, nonetheless likewise an adequate agent of the compensation scheme, 3) The idea of financial constancy is not personally linked to the deficiency of financial disaster, nonetheless likewise the capability of financial institutions to control, understanding and managing the emergence of disparities than risking themselves or through economic methods; (4) the financial stability must be understood in the sense of the possible impact on the real economy; (5) essentially assumed financial stability as a range (Schinasi, 2004), is a dynamic (intertemporal set and advanced) made a few key elements twisted wrap macroeconomics, financial markets, financial institutes and financial regulation (Figure 1). The study was an investigation of financial stability and consistent policy actions engaged in response to the outcomes of the completion of the report, amend or modify, view the agenda of financial stability.

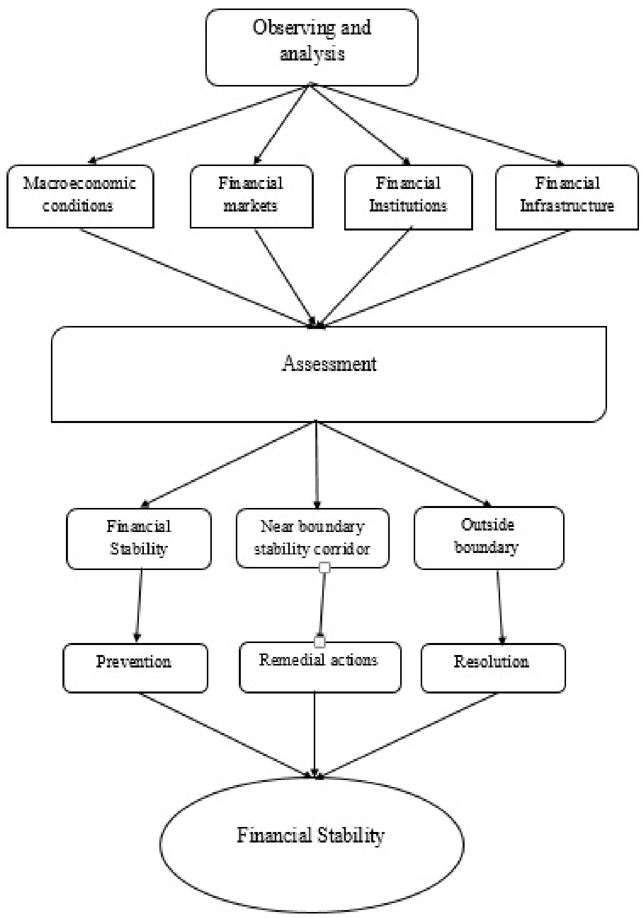

Figure 1. Observing and analysis of financial stability

Because of the deficiency of a strong description of financial stability, financial instability or shock, many experts relax, to pick a negative way to explain the concepts: "... describe the non-appearance of financial stability as instability ... a situation where the economic action is not damaged fluctuating prices of financial properties or financial group is incapable to fulfill promised responsibilities. .. (Crockett, 1997) or "... financial uncertainty state (situation) where the turbulence in financial markets can distort performance ..." (Chant, 2003). Any theoretical descriptions deficit standard cleanly separate incident stability variability.

2.4 Macroeconomic Variables Affecting FS

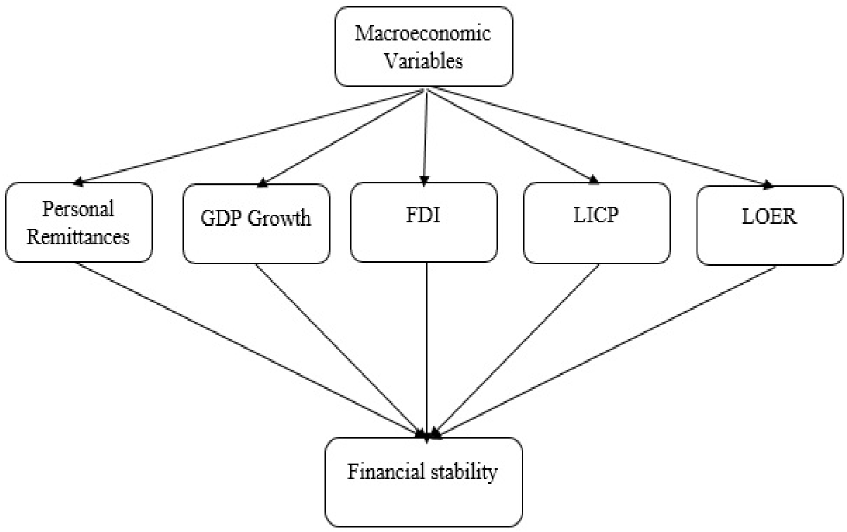

Figure 2. The macroeconomic variables which are affecting financial stability

Above figures show the macroeconomic variables which are affecting financial stability. These variables are personal remittances, GDPG, FDI, LICP and LOER. These variables affecting financial stability in different ways.

2.5 Macroeconomic Indicators and Financial Stability Nexus

Normally all macroeconomic variables have positive impact on the financial stability. In this chapter we learn about the how indicators influence the financial stability and how these indicators can improve and through which factors these macroeconomic indicators can be enhanced. There are multiple factors that can increase the macroeconomic indicators.

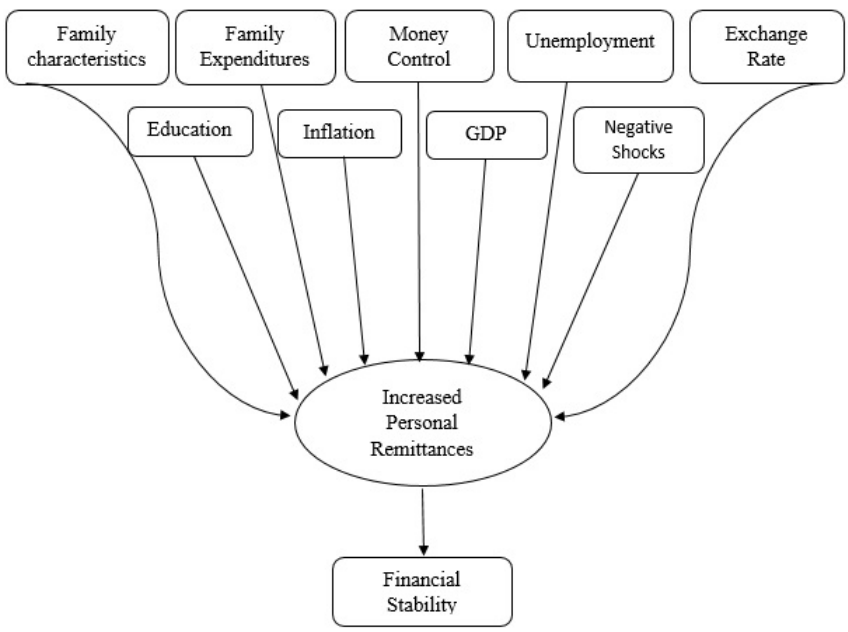

Figure 3. Factors affecting Financial Inflows

2.6 Financial Inflows

Financial inflows that is measured through personal remittances can be enhanced by multiple factors by increase those factors. Different researchers present different factors that affect remittances, but core factors are almost same. According to Rehman and Wadud, (2014) remittances can be increased thruogh controlling inflation, gdp, exchange rates, and by controlling appreciation and depriciation of money. All these can positivelly affect remittances. And also according to Bouiyour and Miftah, (2004) remittances can be enhanced through education. They took different level of educations to describe its affect. They also discussed the family characteristics as expenditures rural or urban and control variables number of migrants. All these have positive impact on remittances.

2.7 GDP Growth

GDP also an important factor to enhance financial stability. All variables that effect GDP are also very important to know. Various researchers use various indicators that enhance the GDP of an economy. Although core variables behind it are almost the same which are human skills, human resources, natural resources, capital formation and technological formation. There are also many other factors that may enhance GDP (Kira, 2013).

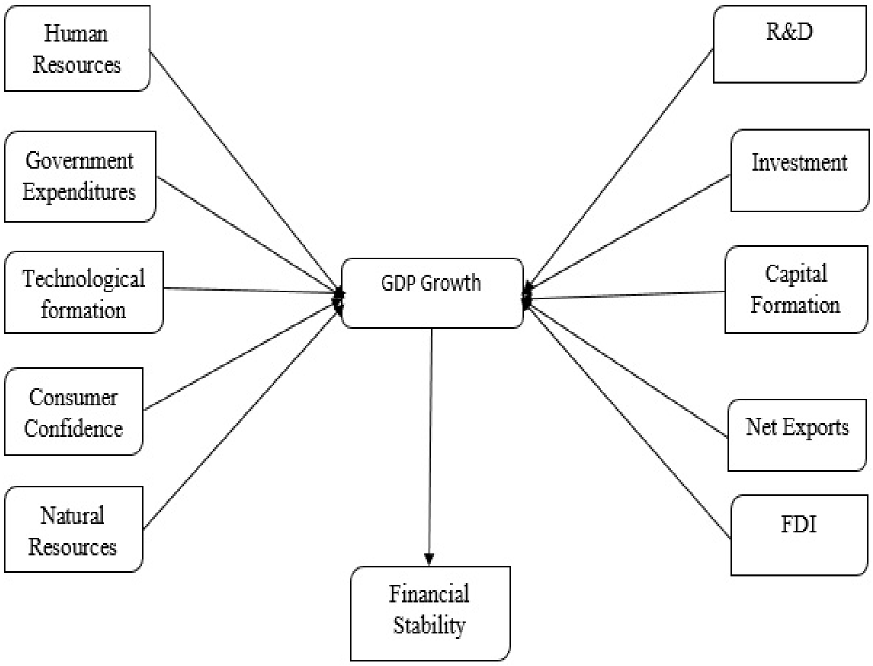

Figure 4. Factors affecting GDP Growth

As from the above figure it can be seen that various factor affecting GDP growth, these factors are human resources, government expenditure, technological formation, consumer confidence, natural resources, R&D, investment, capital formation, net expoorts and FDI. These factors causing demand positively to increase. Increase in demand leads to increase in inflation. Some inflation is healtheir for the economy, because due to inflation increase in the factors that cause the financial stability in the economy.

2.8 Inflation

Inflation is also a key variable to affect financial stability. There are two main factors that would bring inflation in the economy one is demand side and other is supply side. The factors behind these two major aspects are mainly cause to bring inflation in the economy. But there are also many factors they are linked to inflation as money supply, exchange rate growth and GDP (Salmanpur and Branch, 2011). But mostly litrature follow the typical reasons as demand an supply and factors behind it.

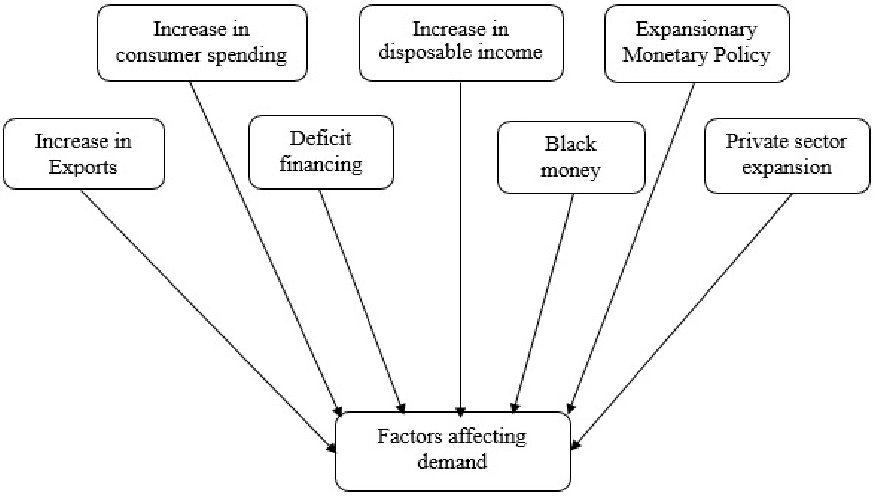

Figure 5. Factor affecting Demand Pull Inflation

Following are the factors which are cause to increase in inflation due to supply factors, this type of inflation is called cost push inflation. These factors are industrial disputes, natural calamities, increase in exports, shortage of FOP and artificial scarcity. (See Figure 4.8)

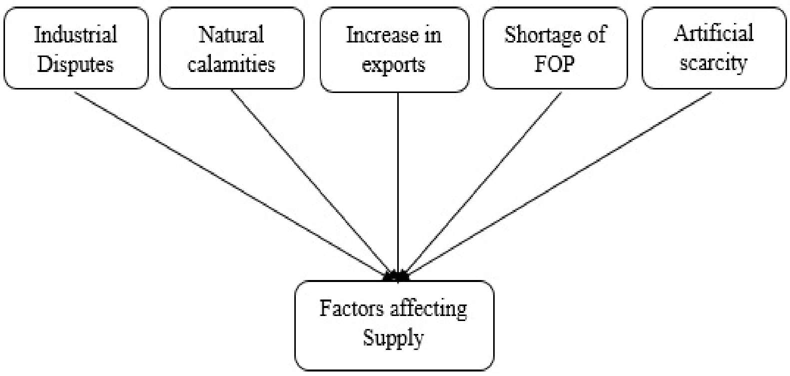

Figure 6. Factors affecting cost push inflation

2.9 Financial Openness

Financial openness is measured through the Foreign Direct Investment. An increase in FDI leads to the increase in financial openness, which leads to enhance the financial stability. There are many factors that affect FDI as wage rate, labor skills, transport and infrastructure and size of the economy. All these are the core variables to increase FDI.

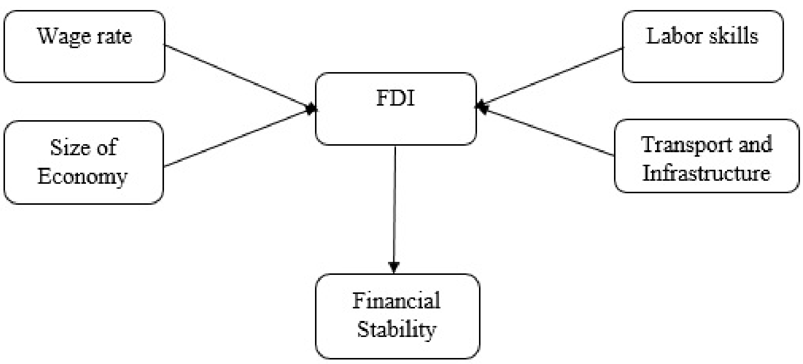

Figure 7. Factors affecting FDI

2.10 Exchange Rate

There are some major variables that affect exchange rate. Researchers used different variables that affect exchange rate according to Parveen et al. (2012) various fators that could affect exchange rate which are economic growth, exports, imports and inflation. But there are also many factors that affect exhange rate.

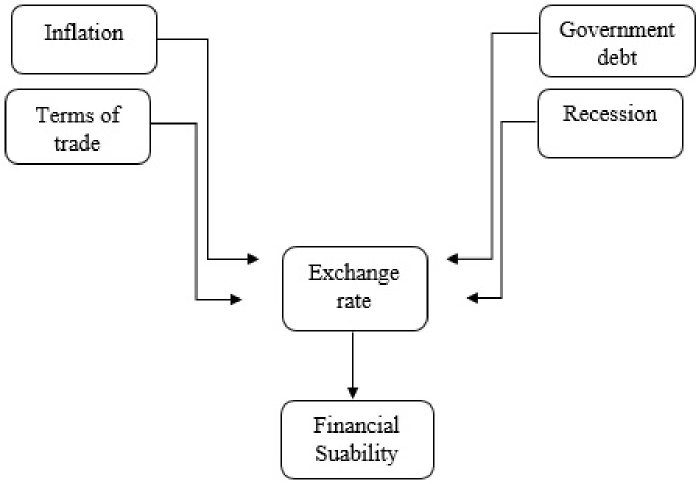

Figure 8. Factors affecting Exchange rate

3. Economic Methodology and Model Specification

3.1 Introduction

To analyze the role of determinants of financial stability on the South Asian countries, we follow the standard literature.

3.2 Data

In this study we use the time period of 1996-2022 and several variables as determinants of financial stability. Our main source of data is WDI, IMF and International Country Risk Guid.

3.3 Variables Description

3.3.1 Financial Stability

Financial stability is dependent variable and measured through an index made of real interest rate (%) Domestic credit provided by financial sector (% of GDP) and Money and quasi money (M2) as % of GDP. Index is made through Principle Component Analysis

3.3.2 Macroeconomic Variables

Financial inflows: Payments of financial equalization payments and personal changes include the transfer of personal responsibility and payment of employees. Personal transferences include all available funds in currency or in kind made or received through resident households or families and non-residents. Thus, personal transfers include all payments among the living and non-residents. Payment of employees mentions to frontier workers and short seasonal employee economy or others where residents and employees living and non-resident entities. Data on the number two is explained in the sixth IMF adjusted Payments Manual: transferring the remuneration and staff personnel.

Economic growth: The growth of the economy is measured by GDP growth per year (% per year). Annual growth rate in percentage of the market based on GDP. Measured on the basis of 2005 US dollars. GDP is the aggregate of the gross worth of all producers of the economic community and creation taxes, subsidies are not included in the product price. Deprived of deductions for projected amortization of property and false or reduce the degradation of natural resources.

Exchange rate: the purchasing power of money relative to another. The official exchange rate mentions, rate set by the country's authorities to determine the level of penalties that market developments. On average is estimated based on the average (currency units relative to the US dollar) per month.

Macroeconomics stability*:* The ratio of price increase is inflation (% per year). With inflation, calculated through the consumer price index shows the annual percentage variation in the price to the consumer of obtaining a basket of goods and services can be defined or modified by the identified pauses, like every year. The Laspeyres formula is widely used.

Financial openness: Financial openness is measured as investment and foreign environmental, related to net neutrality (% of GDP). Direct relation to foreign investment remains neutral net management (10 percent or more of the voting shares) in the ordinary course of business without the debtor economy. Its combination of equity capital, reinvestment of earnings, capital and long-term capital in the short term as reflected in the balance of payments. The list displays that remaining neutrality bound (and linked to the new neutral investment disinvestment) financial land economic report, divided by GDP.

3.4 Model Specification

The general form of model for macroeconomic and political factors affecting financial stability can be written as following:

FS = f(financial inflows, economic growth, exchange rate, macroeconomic stability, financial openness)

Model : Financial Stability and Macroeconomic Variables

$$FS_{it} = \beta_o + \beta_1 F_{I\ it} + \beta 2EG_{\ it} + \beta_3 ER_{\ it} + \beta_4 MS_{\ it} + \beta_5 FO_{\ it}$$

3.5 Econometric Methodology

In this section stated that the panel unit root test which is used to test the stationarity of the variables whether the variables are stationary on level or at first difference next is panel ARDL which is the main econometric technique. This describe the long run and short run relationships between financial stability and the independent variables as macroeconomic variables and political variables. Next is the panel causality test which is used to test the relationship among the variables whether these are causing each other or not. Last is the principle component analysis and its modification which is used to construct the index for financial stability.

4. Results and Interpretation

4.1 Epirical Results and Interpretaion

In this section the long run and short run relationship of financial stability to the macroeconomic and political models is interpreted. In results it is also disused that what kind of relationship of financial stability has with macroeconomic and political variables.

Table 1. Long run results

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
FDI	0.142694	0.038901	3.668093	0.0009***
LPR	1.152606	0.132893	8.673165	0.0000***
LOER	-0.948481	0.278201	-3.409333	0.0019***
LICPI	-0.113677	0.013474	-8.436967	0.0000***
GDPG	0.054486	0.013185	4.132491	0.0003***

Table shows the long run results of economic model in which firsst variable is foreign direct investment and it is statistically significant and coefficient has positive value 3.66. Coefficients shows that one unit increase in FDI leads to increase in financial stability by 366.80%. It means that when there is an increase foreign direct investment financial market and financial conditions would be better in the economy. Foreigner would invest more and other multinational companies also take interest to open their company in interested area for this they bring their resources and investment to the economy. So overall economic conditions and financial stability would better.

Log of personal remittances is also statistically significant and has positive coefficient and can be interpreted as one unit increase in LPR leads to 876.31% increase in financial stability. Coefficient depicts that if the emigrants of the economy sent back their earnings to their relatives in the homeland then there may a positive effect on financial stability and coefficient also it proved the existence of positive relationship between LPR and LFS.

Exchange rate is the price of one currency in terms of the other currency. Stable exchange rate leads to the higher financial stability. According to the model one unit decrease in exchange rate leads to 340.09% increase in financial stability. Coefficient has negative sign which means that if in an economy there is low exchange rate foreigners have confidence in the economy so they invest more without hesitation so the financial condition may have improved which is also depicted in model.

LICP is inflation as consumer price index, as we know that inflation is the continuous increase in price level. Estimated results show that LICP is statistically significant and has negative impact on financial stability. It can be interpreted as one unit increase in LICP leads to 843.69% decrease in financial stability. If the inflation in an economy is under control or lower then economic and financial conditions would be better. People have more interest in investing in the economy and they want to invest in the econoland which leads to increase in financial stability.

GDP growth rate is also an independent variable. In table it can be seen that gdp growth rate is also a significant and positive sign. It means that an increasing gdp growth rate leads to an increase in financial stability. It can be interpreted as one unit increase in gdp growth rate leads to 413.29% increase in financial stability. An increasing GDP growth rate means overall economy is expanding because there is increase in consumption, increase in investment, increase in government expenditure and increase in net exports because of all these there is an increase in financial stability. Finding shows the results of Demirguc-Kunt and Detragiache transcriptase (1998), but this opposes the results Cihák (2007).

Table 2. Short Run Results

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.***
ECM(-1)	-0.200367	0.114380	-1.751768	0.0900*
D(LFS(-1))	-0.069096	0.202963	-0.340438	0.7359
D(FDI)	-0.024567	0.011332	-2.167979	0.0382**
D(FDI(-1))	-0.028579	0.015850	-1.803173	0.0814*
D(LPR)	-0.144654	0.133988	-1.079608	0.2889
D(LPR(-1))	-0.216874	0.170522	-1.271823	0.2132
D(LOER)	0.278617	0.160755	1.733173	0.0933*
D(LOER(-1))	0.032078	0.207337	0.154717	0.8781
D(LICPI)	0.019363	0.005724	3.382896	0.0020***
D(LICPI(-1))	0.009928	0.004194	2.367155	0.0246**
D(GDPG)	0.003173	0.004411	0.719313	0.4775
D(GDPG(-1))	0.010011	0.008941	1.119645	0.2717
C	1.288510	0.679168	1.897188	0.

Above table show the short run results of Economic model. In above table error correction is significant and has negative sign. Error correction term has value about 20% which shows the adjustment. This is a sign that model touches to the stability.

LFS (-1) is the previous years financial stability. Financial stability of previous year could affect the stability of current year. Coefficient of previous years financial stability is statistically insignificant, which means there is no role of previous year's financial stability in current years.

FDI and FDI (-1) is the current and previous years foreign direct investment respectively. Both the coefficients are statistically significant but previous year's FDI has negative impact on current year's FDI. The reason may be that there may be large enough FDI in the economy so there is no more need to more FDI, this is the reason to negative impact on the current FDI.

Personal remittances of current and previous years both the statistically insignificant. Because stability is the long term phenomena if we receive personal remittances today, there is no effect on stability immediately. So personal remittances have no influence on stability in short run.

LOER is the official exchange rate. Exchange rate is statistically significant in current period and insignificant in the previous period. This may be interpreted as that previous years current rate does not affect the current years exchange rate. Exchange rate is short term phenomena, because when exchange rate is change, it would change immediately. Therefore current years exchange rate is statistically significant.

Inflation is short term penman, coefficient of inflation in current and previous years are both statistically significant. Which means that inflation of previous years has effect on current years inflation. Previous years inflation has positive impact on current years inflation means current years inflation is higher than the previous years inflation.

In short run GDPG rate has no impact on financial stability, because both the coefficients are insignificant. Moreover that current years GDPG rate is lower than the previous years which is not logically possible, because GDPG rate is mostly more in current year than in previous year.

5. Conclusion

This study is an effort to discover the influence of macroeconomic on the financial stability of developing Asian economies. An index of financial stability is built by the real interest rate (%), domestic credit provided by the financial sector (% of GDP) and money and just (M2) money in% of GDP. Index built by principle component analysis. Panel ARDL are used for the econometric analysis. A different model specifications are used for different kinds of macroeconomic variables and financial stability index generated using the principal components method. Macroeconomic variables are FDI PR GDPG ICP and OER, which are the core variables for economy and has a large impact on the stability of the economy. The consequences showed by the Panel ARDL, that global macroeconomic policy variables have a positive impact on financial stability, all variables are significant in long run but not in short run because some variables take time after policy implementation. In short run FDI and lag of FDI, exchange rate and inflation are significant in macroeconomic model. This work accomplishes that the financial stability can be improved by strengthening the macroeconomic improvement. To attain this goal, it is necessary to take effective measures to improve the variables policies such as personal remittances, FDI, official exchange rate, inflation and the GDP growth rate. This needs joint efforts and the introduction of radical changes in the political and macroeconomic arrangements in the country.

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