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A Regression-Based Analysis of IMF Loans on Financial Stability in South Asian Countries

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ABSTRACT

The International Monetary Fund (IMF) has been controversial since its inception; proponents hold that it serves an essential purpose in global economic governance and preventing crises, while critics maintain that it worsens economic conditions and the quality of life for those who bear its effects. In this paper, we seek to analyze a subset of these claims by focusing on the effect of IMF Loans on the financial sector in South Asian countries. We choose the financial sector as many consider it to be the driving force of our economy, and South Asia due to its status as one of the fastest-developing economic regions. To perform this investigation, we collected data from the World Bank and performed individual regressions, and constructed line graphs comparing time and disbursements vs. total non-performing loans to total gross loans, the real interest rate, and foreign exchange rate. The results showed a statistically insignificant but weakly positive correlation between IMF involvement and total non-performing loans to total gross loans (implying IMF involvement leads to an increase in non-performing loans) and no significant correlation between IMF involvement and the real interest rate or foreign exchange rate. This study implies that countries should reconsider IMF loans in light of minimal or even negative effectiveness.

Introduction

The expressed purpose of the International Monetary Fund (IMF) is "to achieve sustainable growth and prosperity for all of its 190 member countries," by "supporting economic policies that promote financial stability." More concretely, the IMF accomplishes this through the strategies of preventative surveillance, policy guidelines, and lending facilities in times of crisis (*What is the IMF*, 2022). These lending facilities are the most contentious in the discourse surrounding the fund, as they are accompanied by Structural Adjustment Programs (SAPs). These programs make loans conditional, by attaching lending to certain policy recommendations and actions (*IMF Lending*, 2022). It is this nature that makes IMF lending so controversial, with many arguing that, on balance, the costs of these programs outweigh the benefits in preserving financial stability, with proponents arguing the converse.

Various studies have appeared on both sides of the issue. The IMF itself cites the 1997 Asian financial crisis as an example of its success. "This rebound did not happen spontaneously, but came about as a result of steadfast policy implementation by the affected countries and large scale financial support from the international community, especially under IMF--supported programs," with "the strategies adopted proving successful in restoring financial market confidence and stability, and in achieving a resumption of economic growth." For context, the Asian financial crisis was a currency crisis that occurred in late 1997 when many South-East Asian countries experienced currency and foreign trade market collapses. As a result, the IMF intervened, forcing SAPs (in this scenario, this mainly involved tightening monetary policies and increasing foreign reserves), which many believe to have contributed to the speedier than anticipated recovery. Specifically, following IMF program implementation, exchange rates and interest

rates returned to pre-crisis levels, and South Korea saw a 10.75% growth rate (International Monetary Fund Staff, 2000).

Independent analyses have also been published in favor of the IMF. Referring to IMF enforced policies, one study finds that, “some emerging markets have undertaken reforms to improve their economic fundamentals, thereby reducing their vulnerability to crises. More specifically, many emerging markets now have more flexible exchange rates, lower rates of inflation, more responsible fiscal policies, and higher reserve levels. Furthermore, many emerging markets have undertaken structural reforms, aimed in part at strengthening their financial and corpo-rate sectors. This combination of policies has strengthened their economies and reduced their vulnerability to shocks originating elsewhere.” (Classens & Forbes, 2004, pp. 14-15).

However, multiple researchers have arrived at contradictory results, causing difficulty in finding an objective conclusion on IMF efficacy. Even with regard to the Asian financial crisis, some report that Malaysia, a country that rebuked IMF intervention, saw a better recovery than those who accepted. "Malaysia stood out as a country that refused IMF assistance and advice. Instead of further opening its economy, Malaysia imposed capital controls, in an effort to eliminate speculative trading in its currency. While the IMF mocked this approach when adopted, the Fund later admitted that it succeeded (Hessler, 2018)." Multi-country analyses have shown similarly critical results, with statistically significant negative correlations between IMF loan participation and growth (Bordo & Schwartz, 2000; Dreher, 2006; Jorra, 2012). These results are complicated because many countries receiving IMF loans fail to fully comply with the programs, experience political turmoil, and other confounding variables. As such, a concrete conclusion cannot be drawn from either side.

As such, we seek to narrow our study on the effects of IMF lending on overall financial sector stability, specifically in South Asian countries. The reason we choose this is that compliance, turmoil, etc., is relatively normalized due to regional continuity and ties, and financial stability is more directly affected by IMF policy. Additionally, South Asian countries have a robust history of involvement with the IMF to sustain economic development, making them a prime target for study. We picked three South Asian countries for study, namely Bangladesh, Pakistan, and Sri Lanka. The common thread uniting these countries is extensive past IMF involvement, a renewed sense of urgency due to recent IMF loans and talks, and an overall geopolitical similarity, all of which are elaborated on below.

Country Profiles

Bangladesh

Bangladesh is among the most economically promising nations in the developing world, with a positive GDP per capita growth rate over the past 19 years, recently surpassing the per capita GDP of neighboring India and its former parent country Pakistan (The World Bank, 2021a). Historically, Bangladesh has had 12 arrangements since its application as a member of the IMF, of which, they currently owe 761.86 million special drawing rights (SDR). Bangladesh’s most recent loan in 2012 totaled 640 million SDR, the largest ever IMF loan under the Extended Credit Facility, and had the express purpose of addressing “macroeconomic pressures” and building a “reserve buffer”. The loan was in response to a growing balance of payments pressures and declining foreign exchange reserves primarily due to increased demand for oil imports.

Currently, the IMF projects a 6.4% increase in Bangladesh’s real GDP growth for the 2022 fiscal year, but, in its latest Article IV consultation on economic conditions, the IMF outlined several complications of the COVID-19 pandemic and its ostensible impacts on Bangladesh. In a divergence from the previous 5% per annum growth rate, Bangladesh experienced a contracting 3.5% growth rate which has potential ramifications for the overall economy (International Monetary Fund, 2022a). As such, the nation is now in talks with the IMF for an additional 4.5 billion USD to safeguard itself in the event of further economic deterioration (Paul & Das, 2022).

Pakistan

Pakistan, another developing country, also possesses long-standing relations with the IMF. Most recently, Pakistan has taken out loans in 2013 and 2019, totaling 4.393 and 4.268 billion SDR, respectively. Both of these loans were in response to an unstable fiscal deficit and falling foreign exchange reserves stalling economic growth. The country owes 5194.2 million SDR total and has had a combined 23 arrangements since induction into the IMF (*Pakistan: Transactions with the Fund,* 2022).

Recently, due to a combination of internal factors, political turmoil, domestic flooding, and spillover effects arising from the war in Ukraine, the Islamic Republic has experienced an economic crisis. There has been an "unsustainable current account deficit," a decline in foreign reserves, marked depreciation of the Rupee, decelerating GDP growth, and a widening trade deficit. All these led the IMF to extend loans to the country, apportioning 894 million SDR in August of 2022.

Sri Lanka

Sri Lanka, too, has had an extensive history with the IMF, partaking in 16 arrangements total. Currently, they owe 857.49 million SDR in outstanding loans. The IMF previously bailed out Sri Lanka in the face of a debt crisis, providing the country with 1.6 billion US dollars. Similar disbursements were given in the following years since due to related issues (Shaffer 2016).

Currently, the Sri Lankan economy has suffered significant impacts due to the global COVID-19 pandemic. In 2020, real GDP contracted by 3.6%, and the public debt to GDP ratio rose from 94% to 119% in the past year. While GDP growth has recovered (3.6% growth in 2021), the debt crisis serves as a looming issue, and many fear the country is on verge of default. Further, financial asset quality has declined, there is a shortage in foreign exchange reserves, and large current account deficits, all coupled with a balance of payments of crisis (International Monetary Fund, 2022b). As such, Sri Lanka has turned to the IMF and has achieved a provisional agreement for a 2.9 billion US dollar loan (Tan 2022).

Methodology

Variables

The first independent variable that we chose was the number of years that passed after an IMF loan was issued. We chose this to analyze the effects of these IMF loans over time and keep track of how much time was passing. Additionally, we used disbursements of the IMF loans as our second independent variable. Disbursements are defined as the total SDR/$ withdrawn from the IMF each year.

The first dependent variable that we chose was the ratio of non-performing loans to the total gross loans of a country. Non-performing loans are loans with a low likelihood of being paid back (a certain amount of time passes where a debtor does not make a payment). Non-performing loan numbers tend to rise during economic turmoil. This happens because some everyday consumers cannot pay back the loans that they have taken. Hence, when the ratio of non-performing loans to total gross loans is high, it can indicate a lack of financial stability in a country (Segal 2022).

The second dependent variable we chose was real interest rate (%). This is the inflation-adjusted rate at which money is lent out. In a state of economic decline, the real interest rates of these countries tend to fall as well. On that account, they are a great indicator of the financial stability (Brock 2022).

The final dependent variable we chose was the exchange rate of a country's currency to USD. As the exchange rate of these countries increases (PKR/USD, BDT/USD, LKA/USD), the buying power of the people in these countries decreases. This means that those in these countries may have higher costs overall and higher costs of living, leading to potential financial instability (Chen 2022).

Linear Graph Construction

We created line graphs of each of our dependent variables (ratio of non-performing loans to total gross loans of a country, real interest rate (%), and exchange rate of a country's currency to USD) against our first independent variable (years after IMF loan) in order to visually illustrate how these variables are possibly affected by IMF loans. The first vertical, dotted line on each of these graphs is the year that an IMF loan was issued to each country. The second, dotted line on each of these graphs was the year of the final disbursement. These lines were made in order to visually show when these events were happening compared to the changing of the dependent variables.

We chose the years that we analyzed for each country by first looking at their most recent IMF loans and finding ones that were recent enough to be relevant to modern times. The loans also needed to be far enough in the past to have had enough time for effects to materialize.

Regressions

To analyze the data, we conducted a multi-variable regression of the years after IMF loan and disbursement amount on each of the three response variables (non-performing loans to total gross loans ratio, real interest rate, and exchange rate to USD). The regression aimed to decipher any correlations (strength and direction) and determine if the variables are statistically significant in influencing the response variables.

Additionally, to quantify the relationships displayed in the line graphs, we performed secondary regressions, in which we isolated the years after the IMF loan, removing disbursements. This table was also made to narrow our scope, allowing us to identify general IMF activity over certain intervals and its correlating impact on the dependent variables.

Data

With regards to the independent variables, we procured IMF loan history data from the official IMF databases as well, allowing us to calculate the years after the IMF loan variable (*Bangladesh: Transanctions with the Fund, 2022; Pakistan: Transanctions with the Fund, 2022; Sri Lanka: Transanctions with the Fund, 2022)*. Furthermore, we collected disbursement amount data from each IMF loan, primarily focusing on the past decade. For the dependent variables, we gathered each value on a yearly basis from the World Bank databases (The World Bank, 2021b; The World Bank, 2021c; The World Bank, 2021d).

Results

Table 1. Linear Regression with Years after IMF Loan and Disbursement

	Bangladesh Nonpeforming Loan to Total Gross Loans Ratio	Bangladesh Real Interest Rate	Bangladesh Exchange Rate	Pakistan Nonpeforming Loan to Total Gross Loans Ratio	Pakistan Real Interest Rate	Pakistan Exchange Rate	Sri Lanka Nonpeforming Loan to Total Gross Loans Ratio	Sri Lanka Real Interest Rate	Sri Lanka Exchange Rate
Multiple R	0.861	0.541	0.284	0.741	0.885	0.890	0.896	0.920	0.997
R Square	0.742	0.293	0.081	0.549	0.783	0.791	0.803	0.846	0.995
Adjusted R Square	0.483	-0.415	-0.838	0.098	0.565	0.583	0.605	0.692	0.990
Disbursement Coefficient	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Disbursement P-Value	0.592	0.970	0.761	0.259	0.311	0.561	0.198	0.086	0.166
Year Coefficient	1.848	0.251	0.003	-0.661	-2.984	1.844	0.598	1.184	11.255
Year P-Value	0.151	0.517	0.998	0.469	0.117	0.232	0.105	0.126	0.003
Years	2011-2019	2011-2019	2011-2019	2011-2018	2011-2018	2011-2018	2013-2019	2013-2019	2013-2019

Table 2. Linear Regressions with Only Years after IMF Loan

	Bangladesh Nonpeforming Loan to Total Gross Loans Ratio	Bangladesh Real Interest Rate	Bangladesh Exchange Rate	Pakistan Nonpeforming Loan to Total Gross Loans Ratio	Pakistan Real Interest Rate	Pakistan Exchange Rate	Sri Lanka Nonpeforming Loan to Total Gross Loans Ratio	Sri Lanka Real Interest Rate	Sri Lanka Exchange Rate
Multiple R	0.831	0.540	0.159	0.610	0.765	0.861	0.669	0.588	0.991
R Square	0.690	0.292	0.025	0.372	0.586	0.742	0.448	0.346	0.983
Adjusted R Square	0.587	0.056	-0.300	0.163	0.448	0.655	0.264	0.128	0.977
Year Coefficient	1.563	0.244	0.261	-0.432	-2.065	2.302	0.370	0.647	10.459
Year P-Value	0.082	0.347	0.798	0.275	0.131	0.061	0.217	0.297	0.001
Years	2011-2019	2011-2019	2011-2019	2011-2018	2011-2018	2011-2018	2013-2019	2013-2019	2013-2019

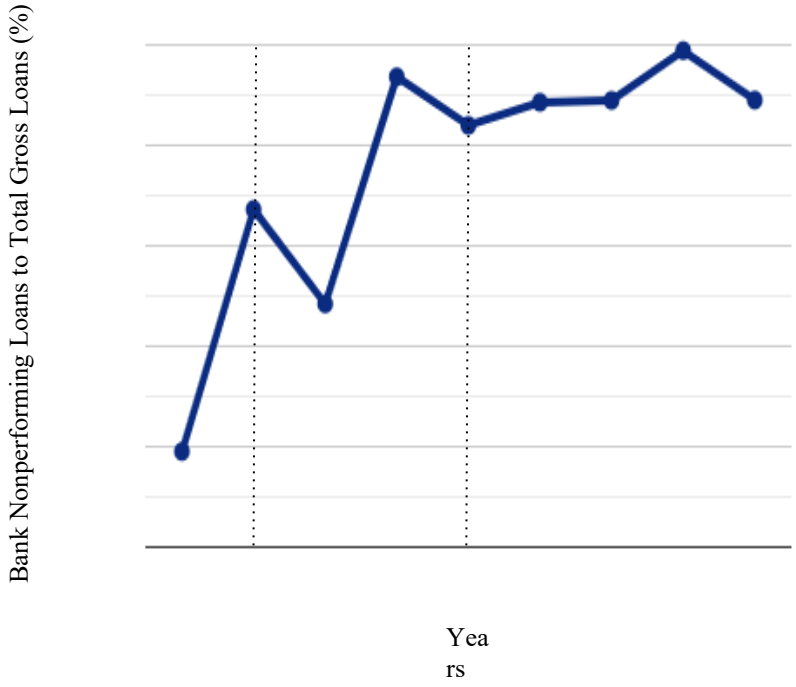

Figure 1. Bangladesh Ratio of Non-Performing to Total Gross Loans from 2011-2019 with Visualization of IMF Loan Disbursements

Figure 1 plots the ratio of non-performing loans to total gross loans over the years 2011-2019 for Bangladesh, with a visualization for the initial year of the IMF loan and an additional visualization for the last consecutive year of disbursements. Bangladesh experienced a sharp increase in the ratio of non-performing to performing loans in the year of the IMF loan, going from 1.9% to 6.7%. This level peaked at 8.4% in 2015, the last consecutive year Bangladesh received disbursements from the IMF, and was sustained in the years following over the interval examined.

Table 1 displays the results of our regression, in which we returned an R-squared value of 0.742. The R-squared value denotes the significance between disbursement as well as years since procuring an IMF loan on the ratio of non-performing to performing loans. However, the P-value of 0.592 returned by the regression signifies an insignificant relationship for disbursement. Table 2 was made to narrow our scope, allowing us to identify general IMF activity over a period of time and its correlating impact on the dependent variable, the ratio of non-performing to performing loans. The second regression outlined in Table 2 returned an R-squared of 0.690, which provides significance, as well as a P-value of 0.082, which somewhat undermines said significance as it falls slightly above the .05 threshold.

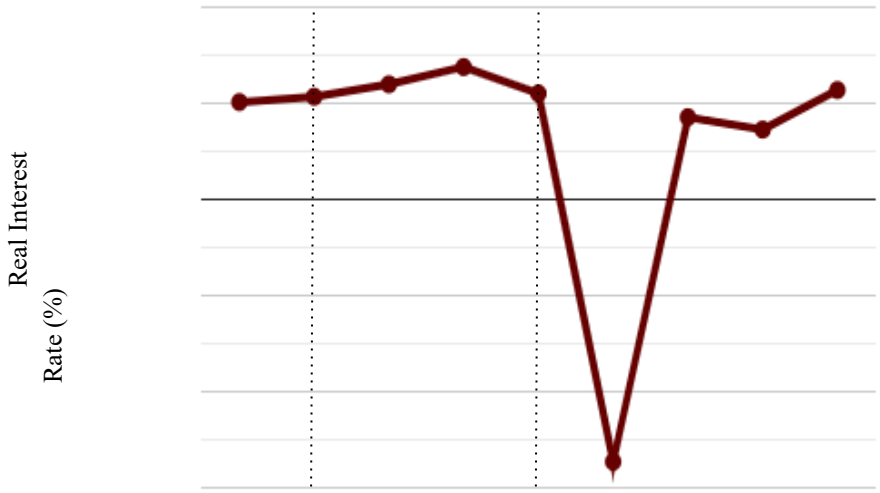

Figure 2. Bangladesh Real Interest Rate from 2011-2019 with Visualization of IMF Loan Disbursements

Figure 2 displays the real interest rate (%) in Bangladesh over the years 2011-2019, with visualizations for the initial year of the IMF loan and an additional visualization for the last consecutive year of disbursements. The figure shows a relatively stable interest rate, with a sharp drop of 5.5% to -13.64% in 2016, shortly after the nation ceased taking IMF loan disbursements.

Table 1 displays the results of our regression, in which we returned an R-squared value of 0.293. The R-squared value denotes little significance between disbursement as well as years since procuring an IMF loan on the real interest rate of Bangladesh. Additionally, the P-values of 0.970 and 0.521 returned by the regression signify an insignificant relationship between disbursement and years since receiving an IMF Loan, respectively. The second regression outlined in Table 2 returned an R-squared of 0.292, which provides no significance, as well as a P-value of .34, which further proves little correlation between the independent and dependent variables.

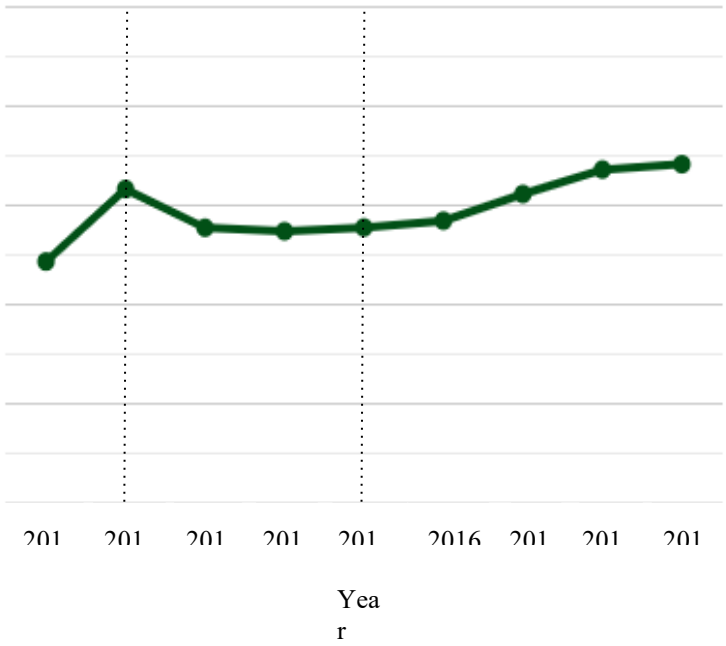

Figure 3. Bangladesh Exchange Rate (BDT to USD) from 2011-2019 with Visualization of IMF Loan Disbursements

Figure 3 displays the exchange rate of Bangladeshi Taka to USD over the years 2011-2019, with visualizations for the initial year of the IMF loan and an additional visualization for the last consecutive year of disbursements. The figure shows a relatively stable currency valuation, with a small drop from 81.7 to 77.8 in 2013 following its initial IMF loan.

Table 1 displays the results of our regression, in which we returned an R-squared value of 0.081. The R-squared value denotes little significance between disbursement as well as years since procuring an IMF loan on the exchange rate of Bangladeshi Taka. Additionally, the P-value of 0.761 and 0.998 returned by the regression signifies an insignificant relationship between disbursement and years since receiving an IMF Loan, respectively. The second regression outlined in Table 2 returned an R-squared of 0.025, which provides no significance, as well as a P-value of 0.8, which further proves little correlation between the independent and dependent variables.

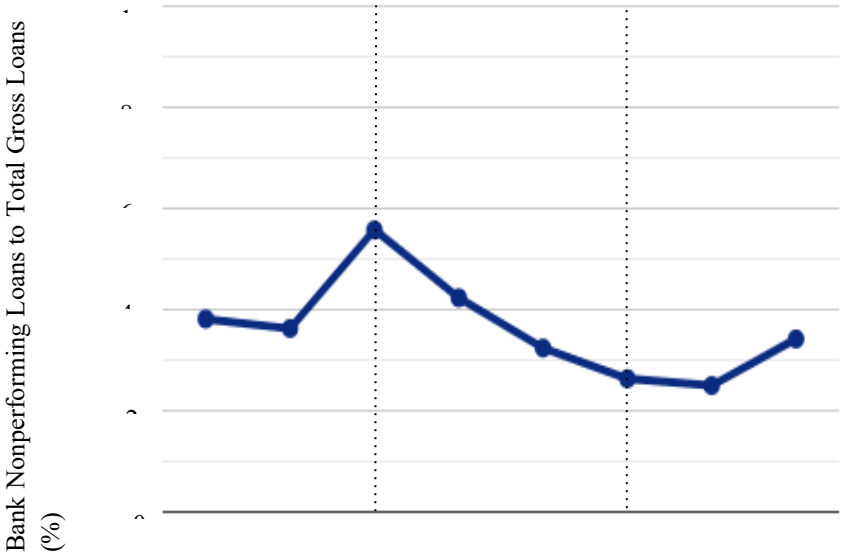

Figure 4. Pakistan Ratio of Non-Performing to Total Gross Loans from 2011-2018 with Visualization of IMF Loan Disbursements

Figure 4 plots the ratio of non-performing loans to total gross loans from 2011 - 2018 for Pakistan with a visualization for the initial year of the IMF loan and an additional visualization for the last consecutive year of disbursements.

Table 1 displays the results of q regression, in which we returned an R-squared value of 0.549. The R-squared value denotes minimal significance between disbursement as well as years since procuring an IMF loan on the ratio of non-performing to performing loans. Additionally, the P-value of 0.259 returned by the regression signifies an insignificant relationship for disbursement. The second regression outlined in Table 2 returned an R-squared of .37, which provides no significance, as well as a P-value of 0.275, which undermines any significance as it falls above the .05 threshold.

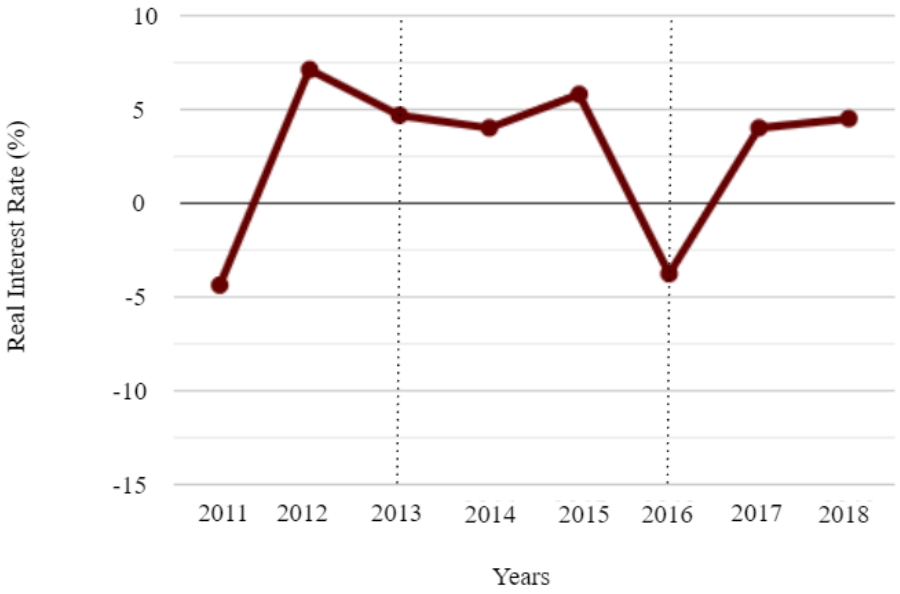

Figure 5. Pakistan Real Interest Rate from 2011-2018 with Visualization of IMF Loan Disbursements

Figure 5 displays the real interest rate (%) in Pakistan over the years 2011-2018, with visualizations for the initial year of the IMF loan and an additional visualization for the last consecutive year of disbursements. The figure displays a fluctuating interest rate, with a sharp drop from 5.8% to -3.76% in 2016, the same year the nation ceased taking IMF loan disbursements.

Table 1 displays the results of our regression, in which we returned an R-squared value of 0.783. The R-squared value denotes significance between disbursement as well as years since procuring an IMF loan on the real interest rate of Bangladesh. However, the P-values of 0.311 and 0.117 returned by the regression signify an insignificant relationship between disbursement and years since receiving an IMF Loan, respectively. As such, we performed an additional regression, Table 2, in which we isolated the years after the IMF loan variable, removing disbursements. The second regression outlined in Table 2 returned an R-squared of 0.586, which provides moderate significance, as well as a P-value of 0.131, which overturns any significance and proves little correlation between the independent and dependent variables.

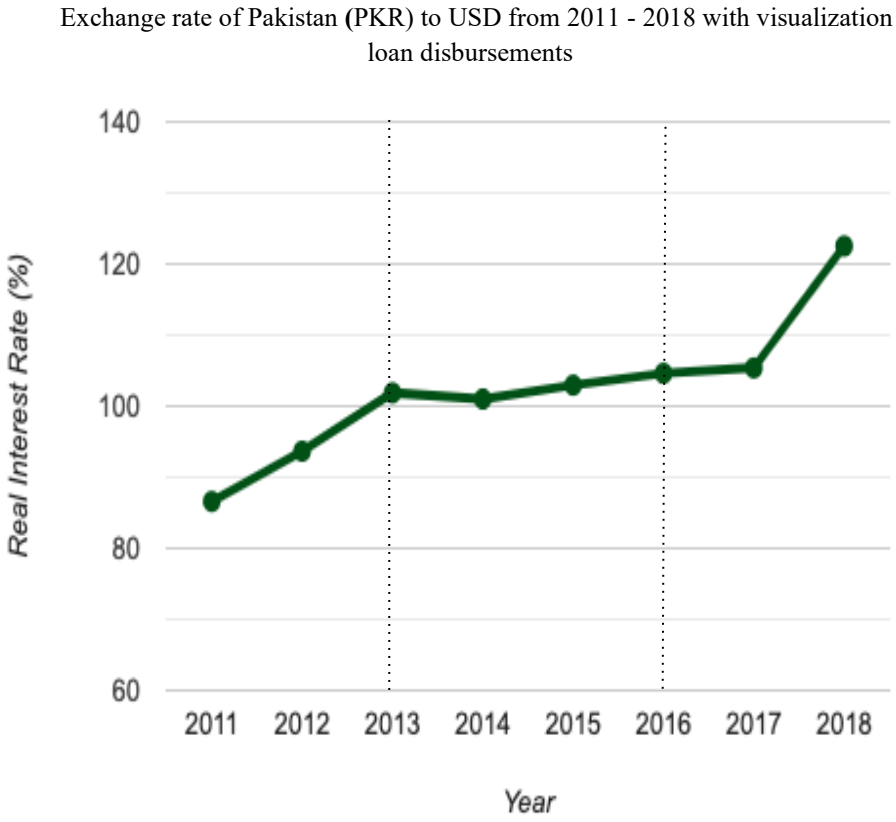

Figure 6. Pakistan Exchange Rate (PKR to USD) from 2011-2018 with Visualization of IMF Loan Disbursements

Figure 6 displays the exchange rate of PKR to USD over the years 2011-2018, with visualizations for the initial year of the IMF loan and an additional visualization for the last consecutive year of disbursements. The figure shows a relatively stable devaluation of the currency, with stagnation in valuation following its initial IMF loan and throughout its IMF disbursements from 2013-2016.

Table 1 displays the results of our regressions, in which we returned an R-squared value of 0.791. The R-squared value denotes significance between disbursement as well as years since procuring an IMF loan on the exchange rate of PKR to USD. However, the P-values of 0.561 and 0.232 returned by the regression signifies an insignificant relationship between Disbursement and Years since receiving an IMF Loan, respectively. As such, we performed an additional regression, Table 2, in which we isolated the years after the IMF loan variable, removing disbursements. This supplementary table was made to narrow our scope, allowing us to identify general IMF activity over a period of time and its correlating impact on the dependent variable, the ratio of non-performing to performing loans. The second regression returned an R-squared of 0.742, which provides significance, as well as a P-value of 0.061, which somewhat proves some correlation between the independent and dependent variables as it is very close to the significance threshold of .05.

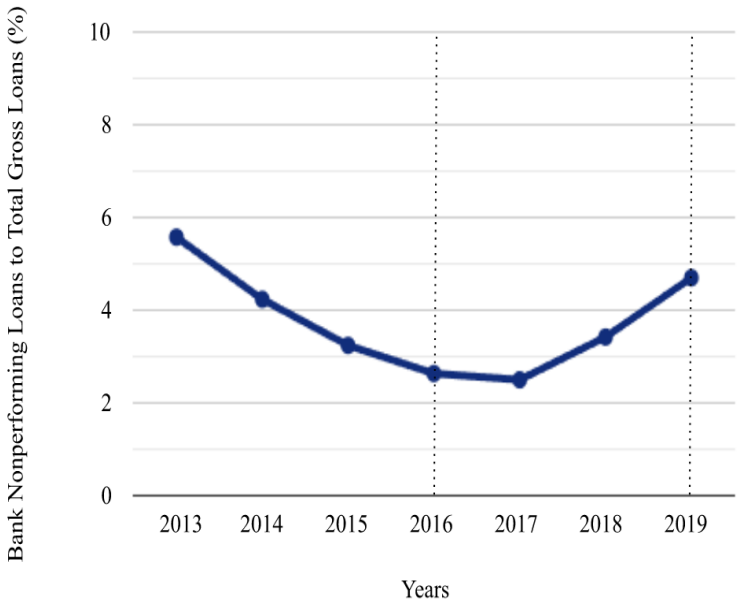

Figure 7. Sri Lanka Ratio of Non-Performing to Total Gross Loans from 2013-2019 with Visualization of IMF Loan Disbursements

Figure 7 plots the ratio of non-performing loans to total gross loans from 2013 - 2019 for Sri Lanka with a visualization for the initial year of the IMF loan and an additional visualization for the last consecutive year of disbursements. Over the course of the interval displayed, Sri Lanka experiences a reversing of a downwards trend in non-performing loans shortly after receiving their IMF loan in 2016, from which the ratio of non-performing to performing loans rose from 2.6% to 4.7%.

Table 1 displays the results of our regression, in which we returned an R-squared value of 0.803. The R-squared value denotes minimal significance between disbursement as well as years since procuring an IMF loan on the ratio of non-performing to performing loans. Additionally, the P-value of 0.198 returned by the regression signifies an insignificant relationship for disbursement. As such, we performed an additional regression, Table 2, in which we isolated the years after the IMF loan variable, removing disbursements. The second regression outlined in Table 2 returned an R-squared of 0.448, which provides no significance, as well as a P-value of 0.217, which undermines any significance as it falls above the .05 threshold.

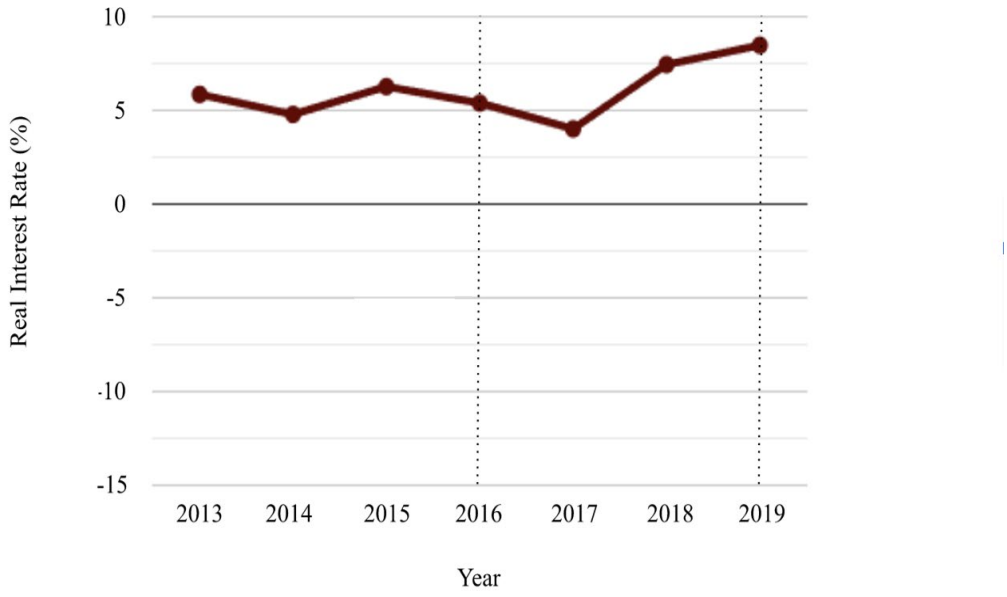

Figure 8. Pakistan Ratio of Real Interest Rate from 2013-2019 with Visualization of IMF Loan Disbursements

Figure 8 displays the real interest rate (%) in Sri Lanka over the years 2013-2019, with visualizations for the initial year of the IMF loan and an additional visualization for the last consecutive year of disbursements. The figure displays a fluctuating interest rate, with an increase of 5.4% to 7.44% from 2016-2019, the same period in which Sri Lanka received IMF disbursements.

Table 1 displays the results of our regressions, from which we returned an R-squared value of 0.846. This R-squared value denotes significance between disbursement as well as years since procuring an IMF loan on the real interest rate of Bangladesh. However, the P-values of 0.086 and 0.126 returned by the regression signify an insignificant relationship between Disbursement and Years since receiving an IMF Loan, respectively. The second regression returned a much lower R-squared of .346, which provides little significance, as well as a P-value of 0.297, which overturns any significance, proving little correlation between years since receiving an IMF Loan and the interest rate of Sri Lanka.

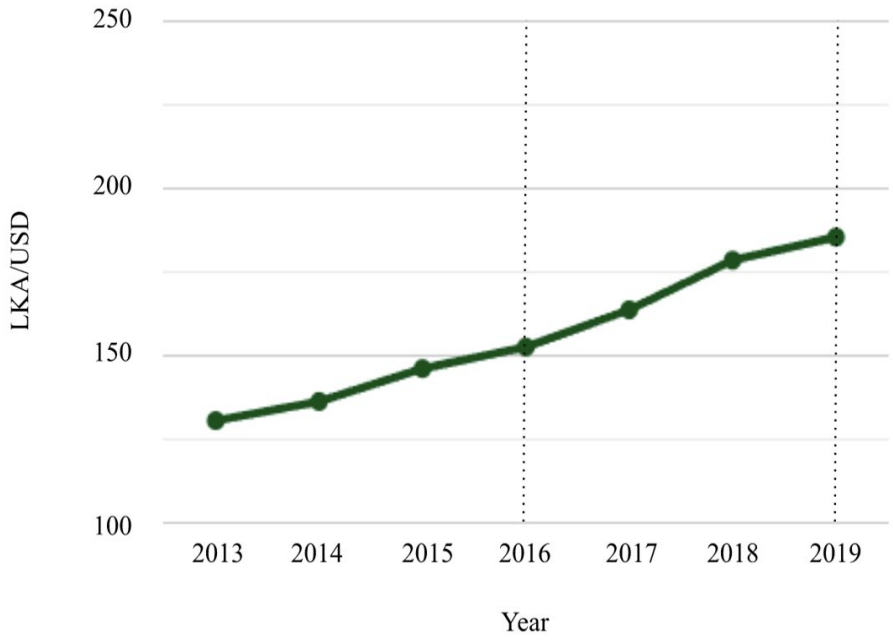

Figure 9. Sri Lanka Exchange Rate (LKA to USD) from 2011-2018 with Visualization of IMF Loan Disbursements

Figure 9 displays the exchange rate of LKA to USD over the years 2013-2019, with visualizations for the initial year of the IMF loan and an additional visualization for the last consecutive year of disbursements. The figure shows a relatively stable devaluation of the currency, with continued decreases in valuation following its initial IMF loan and throughout its IMF disbursements from 2013-2016.

Table 1 displays the results of our regressions, in which we returned an R-squared value of 0.995. The R-squared value denotes high significance between disbursement as well as years since procuring an IMF loan on the exchange rate of LKA to USD. Additionally, the P-values of 0.166 and 0.003 returned by the regression signifies an insignificant relationship for Disbursement and a significant relationship for Years since receiving an IMF Loan, respectively. The second regression outlined in Table 2 returned an R-squared of 0.983, which provides significance, as well as a P-value of 0.0009, which proves a significant correlation between the independent and dependent variables as it is very close to the significance threshold of 0.05. However, these results may need to be assessed within the additional context of currency valuations outside of IMF loan intervals.

Discussion

The purpose of our study was to assess the correlation between IMF loans as well as their disbursements to participating nations and said nations' financial market stability using several indicators. The regressions we ran on each variable on a country-by-country basis all returned contrasting results with varying levels of significance.

For the ratio of non-performing loans to performing loans, we collected data provided by the World Bank from Bangladesh, Sri Lanka, and Pakistan and ran two regressions over the intervals in which the nations received consecutive disbursements. The first regressions ran contained both the disbursement amount in SDR per year as well as years since IMF loans as independent variables, with the inclusion of the year before the IMF loan as a baseline to gauge the initial impact of the loan. Both Bangladesh and Sri Lanka returned substantial R-squared values of .74 and

.80, respectively, while Pakistan saw a moderate R-squared value of .55. While these results may have signified a correlation between the variables, the P-values returned for all the regressions were greater than those which would quantify significance. Moreso, in our regressions run excluding disbursements as a variable over the same interval, we returned no statistically significant results.

However, with our graphical analysis, we are able to draw some conclusions. Both Pakistan and Bangladesh experienced sudden spikes in the (%) non-performing loans in the same years they took out their respective IMF loans. Pakistan oversaw a 53.69% increase in 2013, while Bangladesh oversaw a 253.08% Increase in 2012. Additionally, Sri Lanka, which did not experience an increase in non-performing loans in the year of their IMF loan, would oversee the reversal of a decreasing trend in non-performing loans, rising to 4.7% from 2.63% over the period they received disbursements. Our graphical analysis provides us insights not found in our regression analysis, displaying a possible increase in non-performing loans in reaction to an IMF loan.

In our analysis of IMF loan impact on the real interest rate, we collected annual interest rates provided by the World Bank for Bangladesh, Sri Lanka, and Pakistan. Additionally, we followed the same methodology as non-performing loans for our regressions. The first regressions we ran, Table 1, returned substantial R-squared values for Sri Lanka and Pakistan at 0.846 and 0.783, respectively. However, Bangladesh returned an insignificant R-squared of 0.293, and all three nations had suboptimal P-values. In Table 2, similar results were produced, with only Pakistan returning a substantial R-squared of 0.586 and no statistically significant outcomes for P-values.

For our analysis of IMF loan impact on the exchange rate, we collected data provided by the World Bank for Bangladesh, Sri Lanka, and Pakistan. Additionally, we followed the same methodology as the ratio of non-performing loans to total gross loans and the exchange rate for our regressions. The first regressions we ran, Table 1, returned substantial R-squared values for Sri Lanka and Pakistan at 0.995 and 0.791, respectively. However, Bangladesh returned an insignificant R-squared of 0.081, and only Sri Lanka returned a significant P-value of 0.003. In Table 2, similar results were produced, with Sri Lanka and Pakistan returning substantial R-Squares of 0.983 and 0.743, respectively, and Bangladesh returning a minimal 0.025. Finally, Sri Lanka would have the only significant P-value of 0.001, however, this finding may have been primarily influenced by the general trend of devaluation of the Sri Lankan currency rather than IMF involvement in particular.

Conclusion

As a result of our findings, we are able to draw a few conclusions on the role of the IMF in South Asia. The IMF as a whole invests loans with the express purpose of stabilizing the financial sectors of nations in crisis, while our study does not tackle a broader set of financial indicators, for the ones we have, we saw no significant effect on stability (neither negative nor positive correlation) for the real interest rate and exchange rate, while we saw a weak correlation between IMF involvement and the ratio of non-performing loans to total gross loans. Even in the best-case scenario where we ignore this weak correlation, we still see the IMF failing at its self-proclaimed task of promoting financial stability in host countries.

This result would be in line with other studies, which show a negative to no significant correlation between IMF involvement and overall economic performance. Specifically, Jorra 2012 found that IMF involvement increases the risk of default by 1.5-2% alongside the multiple aforementioned studies cited in the introduction. In terms of policy recommendations, this would imply countries should be more hesitant in accepting IMF loans in the future, and it may serve better to look at alternative funding sources.

Our research was significantly hampered by our lack of data over broader timeframes. Specifically, the inability to find more recent data points for real interest rates as well as the inability to find values for the ratio of non-performing loans to total loans before 2011, for the countries we assessed. These limitations forced us to narrow our regressions, with few observations to isolate and determine the impact of IMF loans. Had we had a larger data set, we may have been able to draw broader conclusions about the efficacy of IMF loans in addressing the indicators we targeted.

Further, conflicts in terms of actual implementation of IMF policy (i.e proper apportionment, weak policy structure, corruption, etc.) may imply little culpability on the IMF, as our research implies, and more responsibility on the countries affected. Other conditions such as exogenous shocks that cannot be controlled may have also played a role.

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