

The Cyclicalities of IFC Investments

To Be, or Not to Be, Procyclical

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July 2021

Abstract

This paper presents empirical evidence on the cyclicity of investments made by the International Finance Corporation over the past 20 years and explores their implications for the International Finance Corporation's investment strategy in the aftermath of the COVID-19 pandemic. An Independent Evaluation Group report on World Bank Group operations during the global financial crisis found that the International Finance Corporation's role was "neutral to procyclical," as it "did not increase investments in response to the crisis." This study provides a more detailed assessment of the cyclical patterns of International Finance Corporation investment activity by using a longer time horizon of assessment rather than a specific point-in-time-episode, differentiating original commitments from disbursements, and disaggregating investments across regions and industries. The results of the study confirm that International Finance Corporation investment activity was overall procyclical during 2000–19, but this general pattern masks differences over time and across regions and industries. The paper also examines the relation between the cyclical patterns of International Finance Corporation investment activity and its financial performance. The results suggest that the procyclicality is linked with sounder asset quality

(measured by nonperforming loan ratios) and higher profitability (measured by risk-adjusted return on capital), underscoring that prudent portfolio risk management and profit seeking strategies have coexisted with International Finance Corporation investment procyclicality. The procyclicality of International Finance Corporation operations is consistent with its institutional mandate of supporting private sector investment, which is usually procyclical, and the need to maintain an AAA credit rating. Nevertheless, the facts that commitments became less procyclical after the 2008 crisis and the cyclicity of investments varies across regions and industries suggest that there is scope for easing procyclicality without jeopardizing the International Finance Corporation's financial sustainability. In this context, the International Finance Corporation's COVID-19 Fast-Track Facility is a case in point for easing investment procyclicality. Moreover, from a medium-term perspective, a less procyclical investment strategy may be more in line with the International Finance Corporation's 3.0 and Upstream initiatives, which aim at building pipelines of sound projects and prioritizing returns through long-term risk premia and, hence, are undeterred by short-term cyclical volatility.

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The Cyclicalities of IFC Investments: To Be, or Not to Be, Procyclical

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JEL: E32, F21, F33, F44, G20

Keywords: IFC investment, procyclicality, business cycles

¹ The authors would like to thank Mona Haddad, Neil Gregory, and Tatiana Nenova for their support and the useful discussions and suggestions during the preparation of this paper. Gabriel Goldschmidt (in Memoriam), Temel Oktem, Cecilia Rabassa, Eugenia Vargas, Adil Marghub, Allen Forlemu and Tania Kaddeche provided relevant operational insights.

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1 Introduction

Since the 2008 Global Financial Crisis (GFC), international financial institutions (IFIs) have increasingly focused their financial support on mitigating the impact of macroeconomic shocks and stabilizing the business cycles of emerging markets and developing economies (EMDEs). This shift towards more countercyclical multilateral development financial support reflects a heightened awareness that global economic slowdowns and the associated risk aversion in international financial markets pose a disproportionate threat to EMDEs, particularly those facing existing credit constraints.

But should private sector-focused investing by IFIs, and IFC lending particularly, be countercyclical? While countercyclicality is desirable for overall IFI support to countries and several major IFIs supporting the public sector explicitly target macroeconomic stabilization as a core objective, this need not be the case for private sector-focused IFIs, such as the IFC, whose investment activity naturally increases during economic expansions, when the private sector demand for credit rises, and tends to taper off during downturns, when risks increase, profitability diminishes, and private investment demand falls. Moreover, though desirable from a macroeconomic perspective, providing countercyclical support may not be viable for IFC's financial model as its investments do not benefit from sovereign guarantees. Procyclical investment patterns may reflect an appropriate risk-averse, profit-driven approach, whereas countercyclicality could imply an unsustainable degree of risk-taking in the absence of sovereign guarantees and poor profitability performance. In fact, while the IFC's objective is to support the developmental aspirations of its clients, it also has a nonnegotiable imperative to retain strong credit ratings to keep providing support to its private sector clients in EMDEs in the absence of a sovereign guarantee.

An important consideration for IFC, therefore, is the extent to which it can support its clients during downturns without letting such countercyclical lending threaten its financial sustainability. Assessing the cyclical patterns of IFC investment activity over a longer time horizon, disaggregated by regions and industries, can offer insights into solving this problem. As opposed to global crises, where economic slowdowns are broad-based, taking a longer-term perspective allows for observation of country-level economic fluctuations which are generally not synchronized; with some countries experiencing economic upturns even as others face recessions.

In this context, IFC investments can be procyclical and profitable in countries experiencing expansions, whereas IFC investment can be countercyclical and riskier in countries facing recessions with the asset quality and profitability of the IFC overall portfolio still healthy. The same reasoning applies to IFC investments at the industry level within a country, especially in large EMDEs which are strongly diversified. It is perfectly plausible that even if a country faces an economic slowdown, there could be sectors experiencing expansions and the IFC portfolio in this country is still healthy and profitable. Of course, the quality of projects in terms of individual profitability and development impact is critical in ensuring that global and country portfolios are resilient to short term economic fluctuations.

This paper empirically assesses the cyclical patterns of IFC investment activity in the last two decades. Using quarterly data on IFC investments and GDP in 35 client countries from 2000 to 2019, the paper examines how the cyclicity of IFC investment has evolved over time and across countries, regions and industries. To determine how these dynamics interact with the IFC's financial performance objectives, the analysis compares the average ex post portfolio performance, as measured by nonperforming loan (NPL) ratios and risk-adjusted return on capital (RAROC),² of countries in which IFC investment has been procyclical with those in which it has been countercyclical. Finally, the paper highlights IFC's recent corporate initiatives which may contribute to reconciling the objectives of providing countercyclical support to its clients, when they need it most, while preserving financial sustainability.

The paper is organized as follows. Section 2 briefly reviews the existing research on the cyclicity of capital flows to EMDEs and situates this report in the context of existing literature. Section 3 presents the empirical approach used in the analysis, including the definition of key variables and comments on the data treatment. Section 4 presents the stylized facts for IFC investment cyclicity observed over the last two decades, including disaggregated results by subperiod, region, and industry sector. Section 5 discusses the empirical findings and uses ex post portfolio metrics to assess the implications of investment cyclicity for IFC business performance. The final section concludes the report by exploring lessons for IFC investment strategy in the aftermath of the

² RAROC is defined as (%) = $\frac{\text{interest income} + \text{fees} - \text{borrowing costs} - \text{operating expenses} - \text{expected loss}}{\text{economic capital}}$

COVID-19 pandemic and in the implementation of the IFC 3.0 agenda. Additionally, the final section outlines potential next steps and future avenues for research.

2 Literature Review

Analytical models suggest that private capital flows to EMDEs tend to be highly procyclical. During a typical economic expansion, capital inflows rise, access to credit markets increases, and risk premiums fall. Governments, households, and firms take advantage of these improving credit conditions to increase spending and investment, reinforcing the upturn in the business cycle. During a recession, capital flows tend to reverse, as governments, households, and firms face tightening credit constraints in a context of spiking risk premiums and declining spending and investment levels, deepening the economic contraction. Consequently, the procyclicality of private capital flows tends to intensify the business cycle in recipient countries.

The procyclicality typical of capital flows to EMDEs has been amply confirmed by the empirical literature. Kaminsky, Reinhart, and Vegh (2004) show that net capital inflows are strongly procyclical as the share of net capital inflows to GDP tends to be larger during expansions than during recessions, and this finding holds for all groups of countries. Broner et al. (2013) find that gross capital inflows rise during expansions and decline during recessions, indicating that gross flows are also procyclical. Puy (2013) shows that international portfolio investments are highly procyclical relative to global macroeconomic and financial conditions. Papaioannou et al. (2013) provide empirical evidence for the procyclicality of long-term institutional investment and portfolio investment. Araujo et al. (2015) find that private capital inflows to low-income countries are procyclical, albeit less procyclical than flows to EMDEs overall. Levi Yeyati, Panizza and Stein (2007) find that FDI outflows are countercyclical with respect to both output and interest rate cycles in source countries (industrial developed countries), reflecting investors' arbitrage among different investment opportunities, finding that is consistent with the procyclicality of FDI flows in recipient countries.

The literature on the cyclical patterns of official development assistance to governments reflects a similar consensus.³ Pallage and Robe (2001) show that aid flows are both highly volatile and

³ The literature examining the relationship between international aid and economic growth in EMDEs has yielded mixed results. Boone (1996) and Easterly (1997) find that aid is consumed and has no significant effects on growth in

overwhelmingly procyclical, especially among African countries. Dabla-Norris, Minoiu, and Zanna (2010) find that bilateral aid flows are on average procyclical with respect to the business cycles in both donor and recipient countries; however, they also find that these flows become countercyclical when recipients face large adverse terms-of-trade shocks, thereby playing an important buffering role during downturns.

It appears that no assessments of the cyclicity of private sector-focused impact investing by IFIs have yet been undertaken. This study seeks to fill that gap in the empirical literature by assessing the cyclicity of capital flows of IFC as the largest global development finance institution with a private sector focus and how the cyclical patterns of IFC investments in countries and regions are related to its portfolio asset quality and profitability. In turn, the relation between IFC cyclical patterns and its financial performance would help assess the feasibility of a less procyclical investment strategy, particularly during downturns.

3 Empirical Approach

3.1 IFC Investment Activity

The study uses two different variables to model IFC investment activity: (i) *original commitments*, which represent the IFC's initial legal obligation to provide financial products to the client for a given period and (ii) *disbursements*, which are principal outflows from the IFC to the client under the relevant investment agreement. It should be noted that commitments and disbursements data include both equity and debt⁴ financing. The data also aggregates across long-term financing (LTF), short-term financing (STF), and guarantees. It should be noted that STF and guarantees, given their structure and tenor, do not disburse, therefore they are included only in commitments.⁵ We differentiate commitments and disbursements, as the former denote more the moment of the IFC investment decision, while the latter are more related to the client's decision to request a

recipient countries. Burnside and Dollar (2000) show that aid accelerates growth if a sound policy framework is in place. Hansen and Trap (2000) determine that the growth effect of aid is significant but not linear. Easterly et al. (2004) contend that Burnside and Dollar's finding that aid positively affects growth is not robust to the inclusion of new data. More recently, Andersen et al. (2020) demonstrate that a share of aid is diverted to private bank accounts in offshore financial centers, indicating that elite aid-capture reduces the impact of aid on growth.

⁴ Over 80 percent of commitments and disbursements data for the study's sample countries is in debt.

⁵ Over 60 percent of commitments and over 90 percent of disbursements data for the study's sample countries is in long term financing instruments.

disbursement related to a previously signed investment agreement.⁶ All IFC investment data are sourced from the iDesk internal database. Investment data for each country are denominated in US dollars and reported on a quarterly basis. This study examines the 20-year period from the first quarter of 2000 through the fourth quarter of 2019. The raw investment data have been reformatted from the fiscal year to the calendar year and deflated using the US Federal Reserve’s quarterly Consumer Price Index Deflator⁷ to eliminate any potential price effects.

3.2 Countries Output Series

Real quarterly GDP is used to model each recipient country’s economic output. The data series are sourced from the IMF’s International Financial Statistics (IFS) database and have been seasonally adjusted using the simple moving averages method.⁸ A brief discussion of the theoretical basis for removing seasonality from a time series is presented in the Appendix, along with an empirical example from Brazil.

3.3 Extracting Cycles for Correlation Analysis

This study uses two time series, GDP data and IFC investment data, to determine whether the latter is procyclical, countercyclical, or acyclical. To extract business cycles within the time series, the de-trending method is used to separate the trend from the original series. While many econometric methods can decompose a series into its trend and cycles, this study uses the Hodrick-Prescott (HP) filter.⁹ Additional details on de-trending are presented in the Appendix. As a final step, the cyclical component (CC¹⁰) of IFC investment variable and country-level de-seasonalized real GDP are analyzed using the Pearson’s correlation coefficient (r).¹¹ For interpretation purposes, a positive r value implies procyclicality, a negative value implies countercyclicality, and a value of zero implies acyclicity.

⁶ The IFC also has a “hold clause” that can allow it to delay disbursements. However, this clause is rarely invoked, and in practice disbursement delays are essentially a demand-side phenomenon.

⁷ Source: FRED, Index: 2015=100.

⁸ Additional information on seasonal decomposition using moving averages and code is available at: https://www.statsmodels.org/stable/_modules/statsmodels/tsa/seasonal.html#seasonal_decompose.

⁹ Additional information on the HP filter optimization problem and code is available at: https://www.statsmodels.org/stable/_modules/statsmodels/tsa/filters/hp_filter.html.

¹⁰ $CC = \frac{Cycle}{Trend}$

¹¹ Further information on the r test statistic and code is available at:

<https://docs.scipy.org/doc/scipy/reference/generated/scipy.stats.pearsonr.html>.

4 Evidence of IFC Investment Cyclicalities

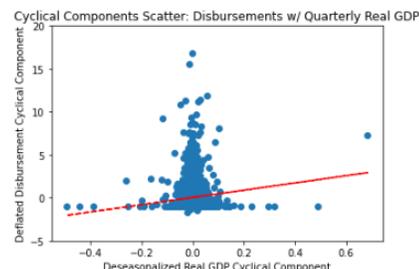
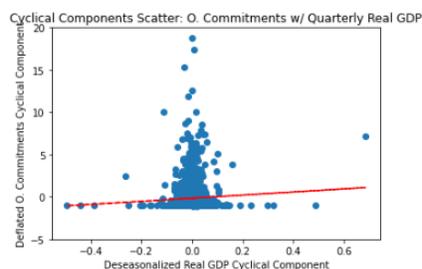
The positive r values for both disbursements and original commitments indicate that aggregate IFC investment flows were overall procyclical during the 2000–2019 period (Table 1). These results are particularly robust for original commitments given the high level of significance of the correlation between commitment flows and the countries' GDP fluctuations, which is not the case for disbursement flows that still exhibit procyclicalities but at non-significant levels. It is worth to note that while procyclical, IFC investment flows are much less procyclical than FDI flows. Indeed, the correlation coefficients of commitment and disbursements flows with GDP fluctuations (0.047 and 0.020) are much lower than the estimated by Kaminsky, Reinhart, and Vegh (2004) which vary between 0.16 to 0.35 depending on the income level groups and the ones estimated by Levy Yeyati, Panizza and Stein which vary between -0.22 and -0.66, depending on the country source of FDI.¹² Furthermore, the disaggregation of IFC commitment and disbursements flows according to tenor, that is into LTF versus STF, yields broadly acyclical (although not significant) results for LTF commitments and disbursements, showing that IFC's LTF flows were generally stable and less sensitive to the business cycles in recipient countries than, say, FDI flows.

Table 1: Summary of Results Using Cyclical Components

	Correlation between IFC Original Commitments and Real GDP	Correlation between IFC Disbursements and Real GDP
r	0.047	0.020
p-value	0.043**	0.405
n (# of obs.)	1,845	1,809

¹² Note that the correlation between FDI outflows and business cycles in source countries is negative: FDI outflows increase in recessions in source/advanced countries while FDI outflows decrease during expansions in advanced economies.

**Correlation
scatter plot**



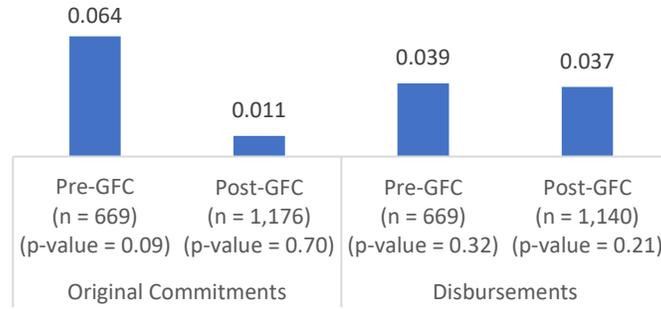
*Significant at 10% confidence interval
**Significant at 5% confidence interval

4.1 IFC Investment Cyclicity before and after the Global Financial Crisis

The results show that IFC investment activity was procyclical both before and after the GFC, but the original commitments became less procyclical since 2008-Q4, which suggest an important change in the cyclical pattern potentially owing to deliberate IFC investment decisions. Indeed, Figure 1 shows that between 2000-Q1 and 2008-Q3, IFC investment activity displayed substantial procyclicality in both quarterly commitments and disbursements with pre-GFC original commitments being statistically significant at 10 percent level. Between 2008-Q4 and 2019-Q4, while disbursements continued to be procyclical, original commitments became less so. Fisher’s z-transformation for the two sample (pre and post GFC) correlation coefficients was used in both original commitments and disbursements to test for significant differences in the pre and post correlation results. The high p-values¹³ for both original commitments and disbursements imply the absence of a significant difference between the pre and post GFC sample correlations. While it seems that IFC investment procyclicality has eased after the GFC, there is no significant difference in correlation between the two periods. Future evidence on IFC investment cyclicity can confirm if the IFC 3.0 strategy launched in December 2016 has played a conclusive part in easing commitment and disbursement procyclicality.

Figure 1: Correlation between IFC Investment Activity and Quarterly Real GDP before and after the Global Financial Crisis

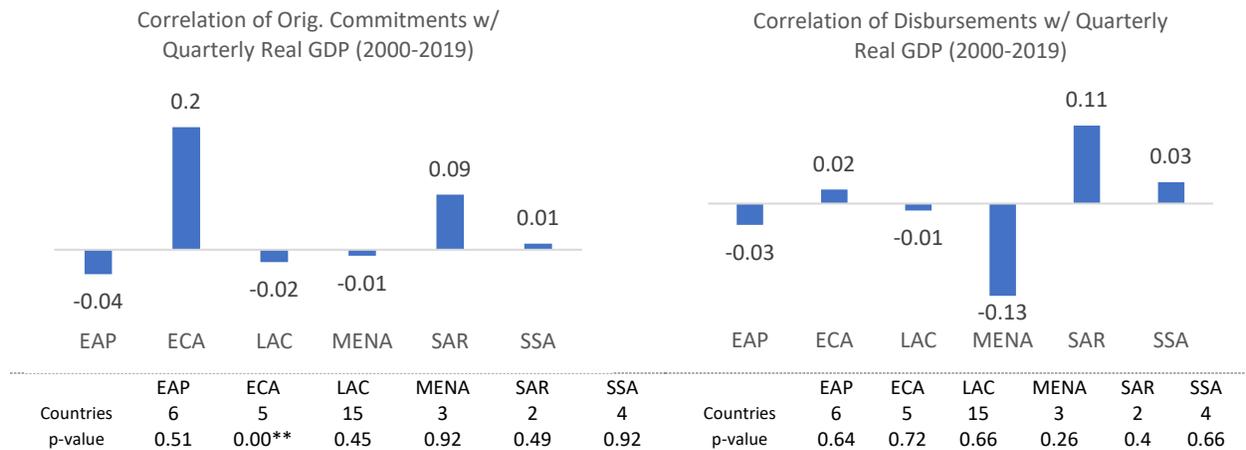
¹³ Pre and Post GFC Original Commitments; z test statistic: 1.094, two-tailed p-value: 0.27; Pre and Post GFC Disbursements; z test statistic: 0.041, two-tailed p-value: 0.97.

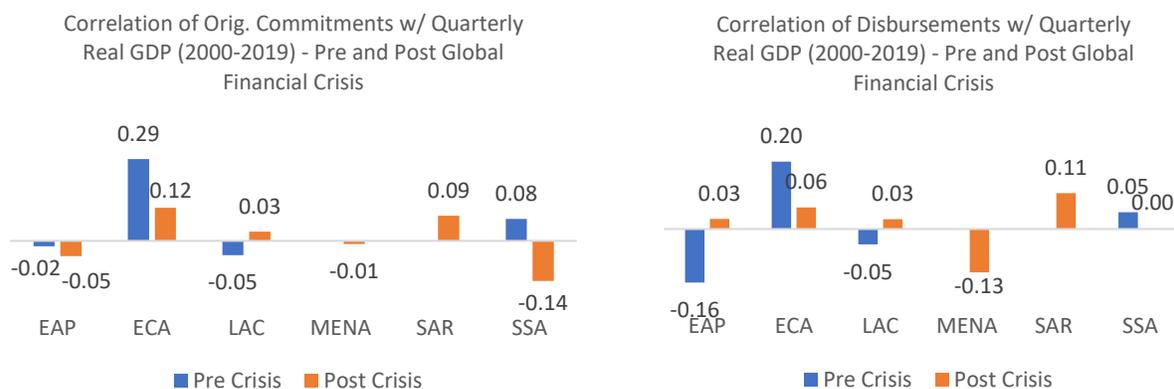


4.2 Regional Comparison

The observed correlations between IFC investment and GDP cycles were consistent across regional groups at both stages of the investment cycle (Figure 2). IFC investment activities in Europe and Central Asia (ECA), South Asia (SAR), and Sub-Saharan Africa (SSA) regions were procyclical in terms of both disbursements and original commitments. While commitments were most procyclical in ECA, disbursements were most procyclical in SAR. In SSA, commitments and disbursements were both procyclical in the last two decades, but the former turned countercyclical following the GFC. Conversely, IFC investment activities in East Asia and the Pacific (EAP) and Latin America and the Caribbean (LAC) and Middle East and North Africa (MENA) were countercyclical over the full period.

Figure 2: Region-Level Correlation Results

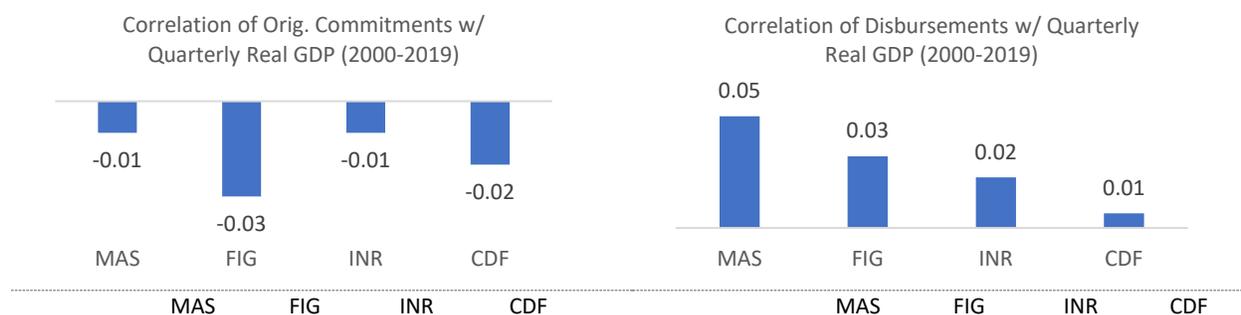




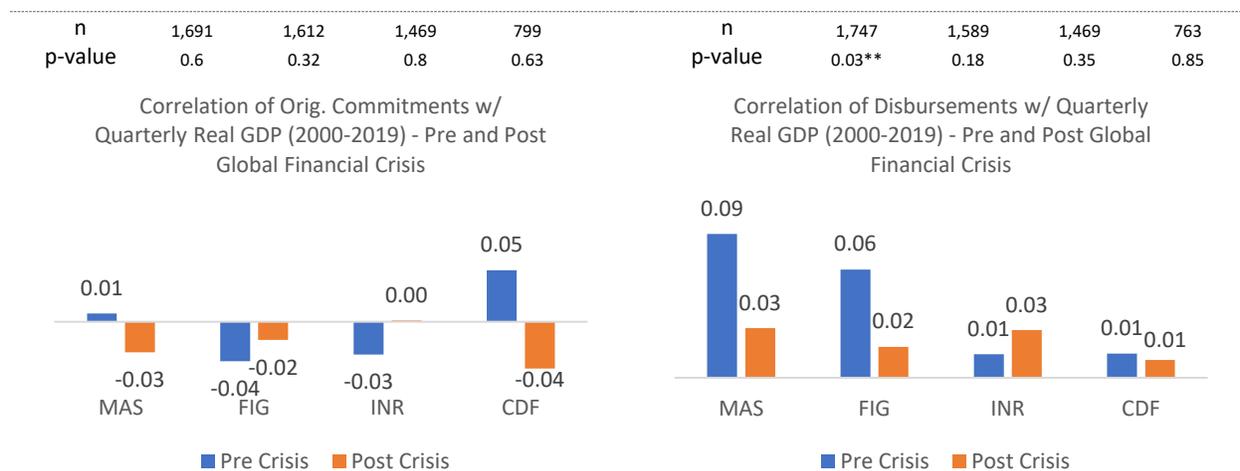
4.3 Sectoral Comparison¹⁴

At the sector level, commitments were consistently countercyclical, yet disbursements were consistently procyclical (Figure 3). This pattern could imply an “intent/implementation mismatch,” in which investments that are designed to be countercyclical become procyclical due to prolonged lags between commitment and disbursement. Disbursement procyclicality was also persistent, as all sectors displayed positive correlations between disbursements and economic activity in the recipient country both before and after the GFC. In the manufacturing, agribusiness, and services (MAS) and disruptive technology and funds (CDF) sectors, commitments turned countercyclical after the GFC, while commitments in the financial institutions group (FIG) remained countercyclical across the entire period. Infrastructure and natural resources (INR) sector commitments were almost acyclical in the post-GFC period.

Figure 3: Sector-Level Correlation Results



¹⁴ NB: Splitting country-level investments by sectors reduces the number of workable observations needed to run two decompositions for GDP (seasonal and cyclical) as not all sectors do business each quarter. This alters the end points of the time series based on when investment in that sector was recorded and implies that the cyclical components of GDP used in the overall case may be different from cyclical components of GDP in the sectoral split. Therefore, the countercyclicality of commitments at the level of each sector (aggregated across countries) should not be viewed as a contradiction to the overall procyclicality result for commitments.



5 Implications of Investment Procyclicality for IFC Operations

5.1 Potential Drivers of Procyclicality

Both demand- and supply-side factors could explain the observed procyclicality of IFC investment. The key demand-side factor is the typical impact of the business cycle on capital inflows and demand for credit described in the literature review: during downturns, worsening macroeconomic indicators lead to higher risk premiums and fewer profitable opportunities, reducing demand for investment across the economy. Meanwhile, at the firm level, unfavorable market conditions may prompt IFC clients with approved loans to delay disbursement until an improving macroeconomic environment bolsters their ability to service debt.

While investment demand is driven by the business cycle, supply-side factors are directly influenced by IFC policy. For most investment projects, the key additionality of IFC financing is its relatively long tenor. By investing in illiquid assets, IFC can provide a stable source of funding and unlock risk premia that are unavailable to their short-term counterparts.¹⁵ However, short-term risk aversion may discourage countercyclical investments even if they promise to yield long-term firm- and market-level gains. For example, a lack of clarity on risk appetite during downturns could lead to prioritization of short-term portfolio management at the expense of longer-term risk premia. IEG’s 2012 report noted this in stating, “the Corporation did not achieve an increased volume of investments as a reflection of a strategic choice to protect its portfolio as well as an overestimation of the prospective deterioration in portfolio quality.” Staff performance incentive

¹⁵ See Papaioannou et al. (2013).

policies and disclosure schedules can also exacerbate short-term risk aversion:¹⁶ while the IFC's institutional objectives have a multi-decade horizon, its agents may be motivated by more immediate career incentives (e.g., performance evaluations and annual bonuses) that may encourage them to adopt more conservative investment strategies during downturns.

In addition to these demand- and supply-side factors, three other dynamics may help explain the observed procyclicality, specifically for LTF: (i) timing of interventions; (ii) real-time macroeconomics uncertainty; and (iii) mechanics of co-financing, sponsor and staff incentives. It is important to note these factors have been proposed based on existing literature on procyclical capital flows into EMDEs and may or may not reflect the true cause of procyclicality for the IFC context. A causal interpretation is beyond the scope of this study which aims to provide stylized facts based on empirical analysis.

(i) Timing of interventions

Timing financial support interventions to coincide with the downturns is critical for a countercyclical approach. The considerable time required to process an IFC investment from the mandate or concept stage to commitment and then disbursement may inadvertently limit the ability to provide timely countercyclical support. Currently, the IFC's average project processing time is 276 days (~3 quarters), and the average processing time over the past two decades is likely even longer. This has been flagged by IFC senior leadership and IFC clients on multiple occasions as a major area for improvement. The lengthy processing lag raises the probability that the business cycle will reverse between the time of mandate, when the concept is developed, and the time when the investment is committed and then disbursed. In other words, long project preparation may explain why investments planned during downturns are committed and disbursed during upturns. To test this hypothesis, we run correlations between original commitments and GDP cycles with 2, 3 and 4 quarters lagged to reflect economic conditions at the mandate stage. While correlations using 2, 3 and 4 lags are not significant, results from this exercise suggest that mandates approved 2 quarters before commitment are countercyclical, and that mandates approved 3 and 4 quarters before original commitments become procyclical, supporting the hypothesis that shorter preparation processing favors a less procyclical investment pattern (for results see Appendix A8).

¹⁶ Ibid.

(ii) Real-time macroeconomic uncertainty

Real business cycle data is permanently revised as new information becomes available with some lag which undermines the ability to identify economic activity fluctuations and to provide timely countercyclical support. Papaioannou et al. (2013) find that elevated macroeconomic volatility and market-risk uncertainty can make it difficult for investors to distinguish temporary price fluctuations from more fundamental changes in risk. Macroeconomic monitoring informs risk assessments by measuring expected losses, and Eicher et al. (2019) find that the poor quality of high-frequency data in many low-income countries can diminish the ability to grasp the timing of downturn and upturn cycles. In addition, frequent statistical revisions negatively affect the ability of analysts to separate cyclical fluctuations from secular macroeconomic trends, complicating efforts to precisely date expansions and recessions. In turn, the absence of precise information on the state of the business cycle in client countries may undermine efforts to implement a countercyclical investment strategy.

(iii) Mechanics of co-financing, sponsor and staff incentives

Disbursement may be delayed due to pending completion of the financing plan (that is, the co-financing partners transmit their cyclicality to IFC disbursement due to covenants which require other financing to be in place). Debt is more likely to be delayed by inability of sponsors to put in equity (or raise it from others) in a downturn. Equity may be deferred in a downturn because it is harder to agree on a valuation – sponsors may not prefer to take equity at what they perceive as temporarily lowered equity prices.

As internal investment targets are set only for commitments not for disbursements, staff incentives can be another potential factor behind commitment countercyclicality and disbursement procyclicality. Indeed, targets on commitments tend to favor a countercyclical pattern for commitments as they push staff towards continuing to meet commitment targets during downturns, as has been the case in FY21. However, in the absence of targets for disbursements, incentives to materialize commitments and accelerate disbursements in downturns are weaker, therefore, the cyclical pattern of disbursements is predominantly driven by the countries' economic cycles, i.e.

disbursements decelerate in downturns and accelerate in upturns making disbursements more procyclical than commitments.¹⁷

5.2 Investment Cyclicity and Financial Performance

As noted above, countercyclical investing may be beneficial from the perspective of macroeconomic stabilization, but IFC operations are underpinned by financial and institutional imperatives to maintain prudence and profitability. Investment cyclicity must therefore be assessed in the context of the IFC's business performance. Since 83 percent of disbursements and 87 percent of original commitments in the sample countries were in the form of debt instruments, debt-portfolio metrics¹⁸ were used to proxy IFC asset quality and profitability.¹⁹

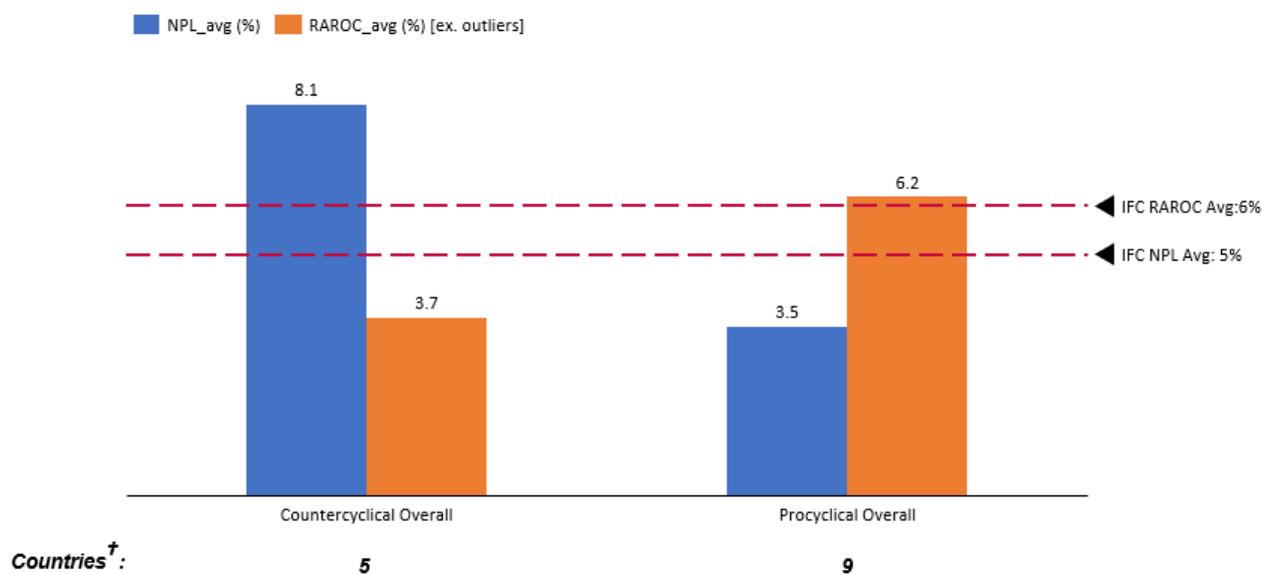
Examining country-level NPL and RAROC statistics enables a comparison of average debt-portfolio performance across two categories of IFC investment cyclicity (Figure 4); (i) procyclical commitments and disbursements and (ii) countercyclical commitments and disbursements. This analysis covers 14 sample countries from the third quarter of 2008 through the second quarter of 2020. Countries are grouped under the two categories according to the orientation of IFC investment during the period.

¹⁷ This may offer another avenue for future research – empirical evidence supporting this proposition can examine historical commitment cancellations trends; comparing cancellations in the recession years with those in upturn periods.

¹⁸ A higher NPL ratio indicates diminished profitability due to lower rates of interest and/or principal recovery, which affect current revenue inflows and future lending. Similarly, a lower RAROC implies diminished profitability due to riskier investments resulting in higher expected loss and a greater allocation of economic capital.

¹⁹ To examine equity-portfolio performance, this analysis could be extended to cover return on equity via capital gains and losses.

Figure 4: Average NPL and RAROC Performance²⁰ among Countries²¹ Grouped by IFC Investment Cyclicalities, Q3 2008 to Q2 2020



Note: † 14 countries displaying reversal in cyclicity between commitment and disbursement stage have been omitted to focus discussion on the above two categories. Cambodia and Korea are excluded for lack of data in the post-GFC period overall. Belize and Venezuela are excluded for lack of data on disbursements and commitments respectively in the post-GFC period.

Countries in which IFC investment was procyclical in both commitments and disbursements had lower average NPL ratio and higher RAROC compared to countries where IFC has been overall countercyclical. This finding is intuitive, as aligning investment with the business cycle would be expected to result in fewer bad loans and higher risk adjusted returns. Countries in which IFC lending was countercyclical in both commitments and disbursements had the relatively higher NPL ratio and relatively lower RAROC, likely due to the elevated credit risk associated with investing during downturns.

NB: RAROC outliers; Botswana (-147%) Bolivia (-40%) and Moldova (-26%) are excluded from the RAROC averages. In most cases, RAROC may remain negative due to high operating costs incurred by a large amount of pipeline activity but few committed projects. This can even apply to countries with large portfolios if there is a large syndication fee. 3- or 4-digit RAROC figures indicates limited exposure. Adding a new project to the portfolio with a large amount of fee income can increase RAROC.

²⁰ NPL averages are from Q3-2008 to Q2-2020 and RAROC averages are from FY2009 to FY2020. RAROC data are only available in annual increments, and RAROC is an ex post measure of the portfolio.

²¹ Included countries:

Countercyclical overall: Argentina, Indonesia, Mexico, Rwanda, Saudi Arabia

Procyclical overall: Armenia, Brazil, Costa Rica, Ecuador, Georgia, India, Kenya, Russian Federation, Uruguay.

6 Concluding Remarks, Next Steps and Areas for Further Analysis

The findings of this paper indicate that over the period 2000-2019, IFC investments were broadly procyclical, but that procyclicality eased, with original commitments becoming considerably less procyclical in the last decade post the GFC. Albeit procyclical, aggregate IFC investments are much less procyclical than FDI flows. Furthermore, results indicate that IFC LTF flows are broadly acyclical or insensitive to the business cycles in recipient countries. Results also suggest that IFC investments in EAP, MENA and LAC have been less procyclical compared to other regions and that commitments at the industry level remained broadly countercyclical with MAS and CDF commitments displaying noticeable reversal in cyclicity post the GFC to become countercyclical, while disbursements across all industry groups remained consistently procyclical.

Winston Churchill had famously remarked in the aftermath of WWII, “Never let a good crisis go to waste”. The COVID-19 crisis has further underscored the crucial role of IFIs in helping countries to attenuate adverse shocks by expanding their support in bad times and indeed the pandemic offers a unique opportunity to provide timely support to the private sector. In March 2020, IFC launched a US\$8 billion Fast Track Facility (FTF) to help firms in client countries weather the impact of COVID-19, adapt to their new operational context, and recover swiftly as the crisis abates. This initiative, along with its US\$400 million extension in the form of the Base of the Pyramid Program (BOP), is expected to further ease the procyclical pattern of IFC’s investment activity, at least in economic slowdowns when IFC clients need stronger support.

As mentioned earlier, longer processing times may be undermining IFC’s ability to provide timely support to clients in recessions. In response to this shortcoming, IFC’s FTF has cut the average processing time from 276 days to 69 days – a more systematic streamlining of deal processing times may further reduce the incidence of procyclical disbursements. Meanwhile, in the aftermath of COVID-19 with reduced fiscal space restricting the ability of governments to pursue countercyclical policies, the role of private sector investment becomes critical and reducing its procyclicality will aid sustainable growth. In this context, by mobilizing private investors, the IFC 3.0 agenda calls for a more proactive IFC investment strategy and less procyclical bias.

Maximizing the development impact of IFC investments, as the core objective of the IFC3.0 reform agenda, may favor a more countercyclical investment strategy as supporting the private sector investments in slowdowns when access to credit is difficult is likely to be key for impactful

business development. In particular, operationalizing the upstream delivery model under the IFC 3.0 agenda will allow IFC to identify longer-term investment opportunities reflected in sound project pipelines undeterred by the short-term cyclical vagaries, enabling investment teams to take a more proactive role in responding to crises. Projects during recession episodes usually have a heightened development impact associated with them and with a streamlined deal processing timeline can enable timely delivery of high-risk-high-reward projects. In addition, proactive macroeconomic monitoring can aid prompt identification of cyclical fluctuations as well as more accurate projections to allow for informed risk-taking.

Additional research into the cyclical nature of private sector-focused IFI support could reveal further opportunities to reconcile a less procyclical approach with IFC's institutional commitment to profitability and prudence. Expanding the analysis to include the COVID-19 FTF and BOP initiatives could shed light on how rapid-disbursement mechanisms and a focus on crisis response affected investment cyclicalities. Studying the relationship between cycles of FDI and IFC investment could contribute to a more nuanced understanding of how demonstration effects influence IFC decisions, if at all. Examining how the sectoral portfolio composition changes across the business cycle could reveal whether real-sector investments (in INR and MAS) are prioritized during upturns while FIG investments rise during downturns to reflect the demand for more short-term working capital financing. A more granular firm-level analysis could determine whether lending to larger firms with relatively resilient balance sheets crowds out lending to smaller firms during downturns. Finally, an assessment of repayment cyclicalities would provide an important complement to this study. The IFC has greater control over the repayment schedule than it does over the disbursement schedules. Debt restructuring or principal/interest deferrals during downturns could indirectly increase the countercyclicalities of IFC investment without compromising the institution's commitment to profitability and prudence.

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Appendix²²

A1. Time series decomposition: Seasonal adjustment

Consider real GDP for a country as an additive model:

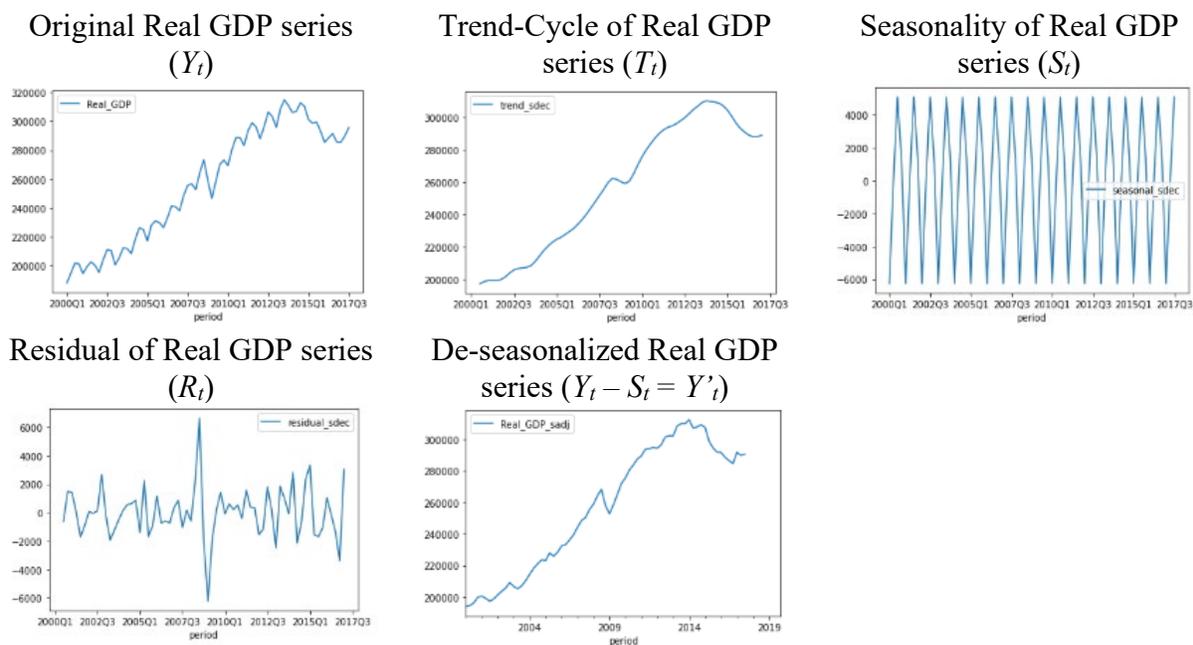
$$\text{Real GDP } (Y_t) = \text{Trend-Cycle } (T_t) + \text{Seasonality } (S_t) + \text{Residual } (R_t)$$

where,

- Trend-Cycle (T_t): Long-term average including the uneven fluctuations around the trend (cycles)
- Seasonality (S_t): Repetitive fluctuations around the trend
- Residual (R_t): Any remaining component after taking out the trend, cycle, and seasonality.

Graphically, the decomposition and seasonality extraction can be seen for the Brazil example as below:

Figure 5: Real GDP seasonal decomposition for Brazil



²² Python script for the analysis can be requested from the authors. Suggested online (free-to-use) coding platform: www.kaggle.com.

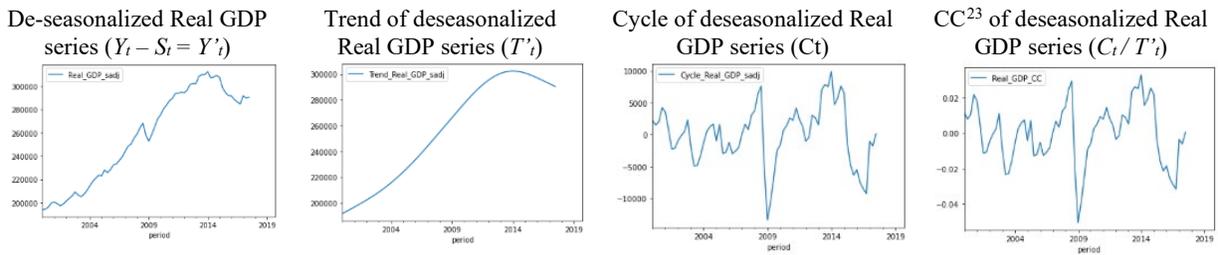
A2. Time series decomposition: De-trending

Consider the following additive model used by the HP filter after seasonal adjustment:

$$\text{De-seasonalized Real GDP } (Y'_t) = \text{Trend } (T'_t) + \text{Cycle } (C_t)$$

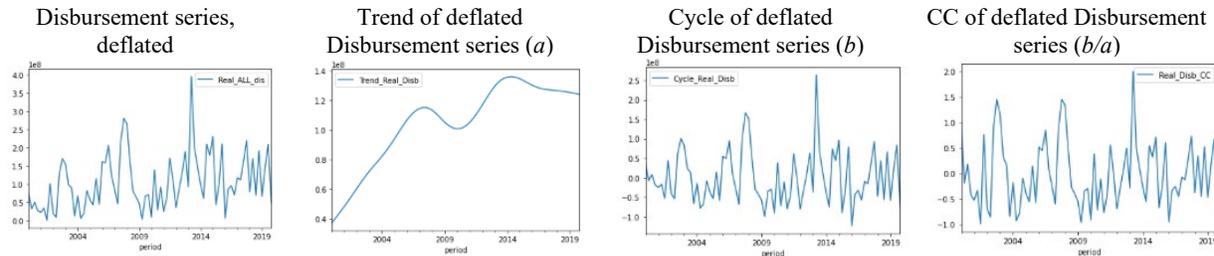
Building on the Brazil example from the previous section and applying the HP filter to the de-seasonalized real GDP will lead to further decomposition as below:

Figure 6: Real GDP de-trending using HP filter for Brazil



Further, the HP filter detrending is applied to the deflated IFC investment data, graphical example for Brazil's disbursement data provided below:

Figure 7: Deflated IFC Disbursement de-trending using HP filter for Brazil



<Please check if footnote 23 appears in the text>

A3. Suggestive regression model

Consider the below model²⁴ as a starting point for future updates to the study:

$$C_{it} = \beta_1 Y_{it} + \beta_2 X_{it} + \mu_i + \varphi_t + \varepsilon_{it}$$

where

- C_{it} : Cyclical component of deflated IFC investment variable by country i in quarter t

²³ Cyclical Component = $\frac{\text{Cycle}}{\text{Trend}}$

²⁴ Robustness checks to alternative estimation methods, samples, and control variables are encouraged.

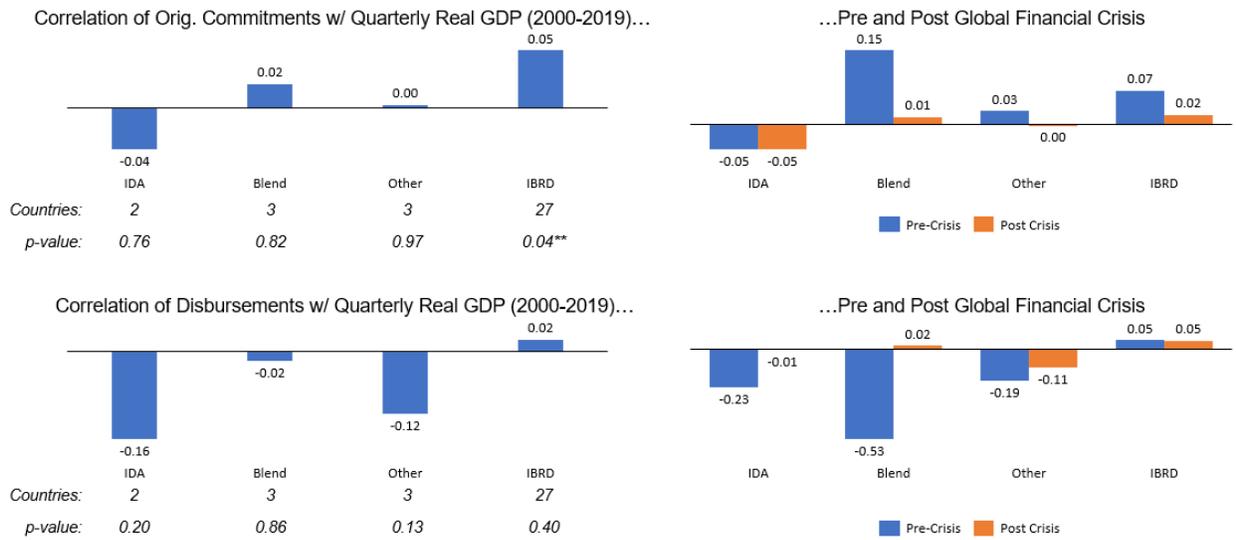
- Y_{it} : Cyclical component of Client Country de-seasonalized Real GDP variable by country i in quarter t
- X_{it} : Vector of control variables, e.g. Foreign Direct Investment (FDI) inflows
- φ_t : Time fixed effects, e.g. Demographic trends
- μ_i : Country fixed effects, e.g. Civil wars / political unrest
- ε_{it} : Error term
- β_1 : Change in C for a unit change in Y
- β_2 : Change in C for a unit change in X .

β_1 , therefore, would replace r as the empirical analysis output to signal how much IFC investment activity responds to changes in economic output. By controlling for the effect of confounding factors, the model can isolate the effect of “good times” and “bad times” on IFC investment behavior to arrive at a causal explanation. Further peer review, particularly within the IFC investment and portfolio teams, will be critical to arrive at the root causes driving the empirical results.

A4. Correlation results by lending category / income group

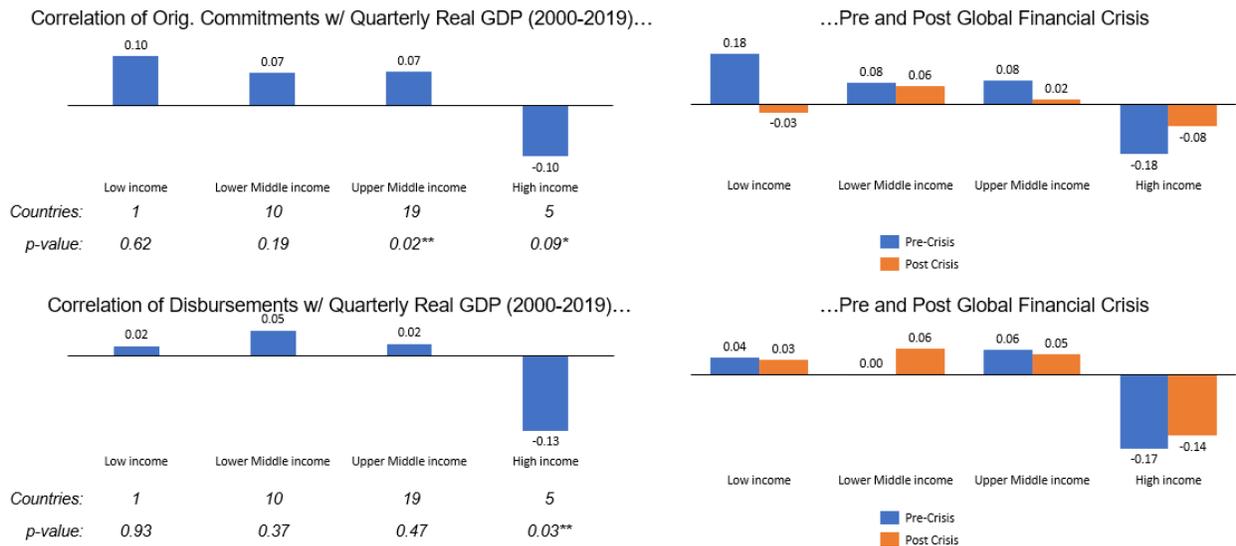
IDA lending category countries’ investment activity was overall countercyclical while IBRD lending category countries’ investment activity was overall procyclical, regardless of investment cycle stage (See 8). Furthermore, even as IBRD lending category remained consistently procyclical in disbursements and commitments both pre GFC as well as post GFC, IDA investment activity remained consistently countercyclical before and after the GFC. Blend category countries benefitted from countercyclical disbursements despite procyclical commitment activity in the last two decades.

Figure 8: Lending category correlation results



When grouping countries by income levels, it was interesting to note that HICs displayed significant countercyclicality in both commitment and disbursement activity. This may reflect differences in flexibility and maturity of credit markets in these markets; HICs have greater flexibility to borrow during downturns while Low Income Countries (LICs) / Middle Income Countries (MICs) may not have the same luxury. Correlation results among MICs were consistently procyclical across lower and upper middle income countries, across investment stages and both pre and post GFC.

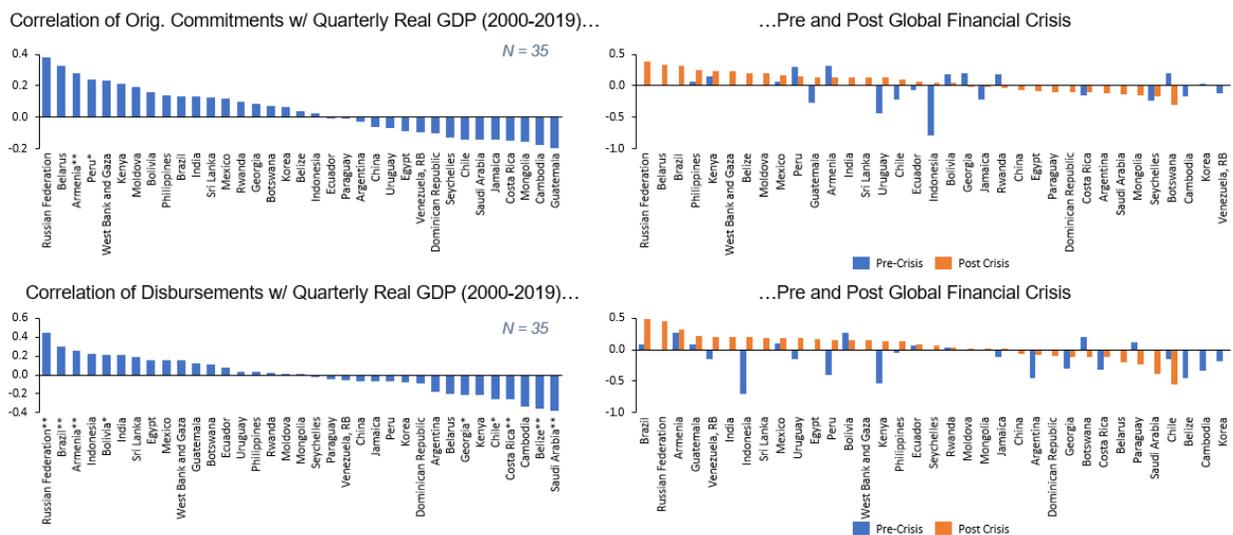
Figure 9: Income group correlation results



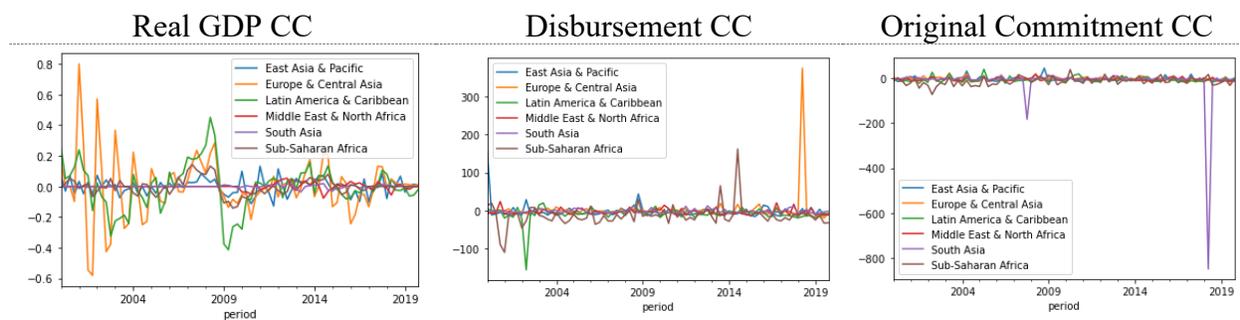
A5. Correlation results by country

The preceding analysis over time and across different categories was facilitated by a sample of 35 countries²⁵ (See Figure 10). The Russian Federation emerged as the most procyclical in terms of both disbursements and commitments. Saudi Arabia was the most countercyclical in disbursement, while Guatemala was the most countercyclical in commitments. Interesting reversals can also be seen in pre and post GFC correlation comparison across the sample countries. Particularly, Indonesia displayed considerable reversal in both commitment and disbursement activity post-GFC (turning procyclical).

Figure 10: Country-level correlation results

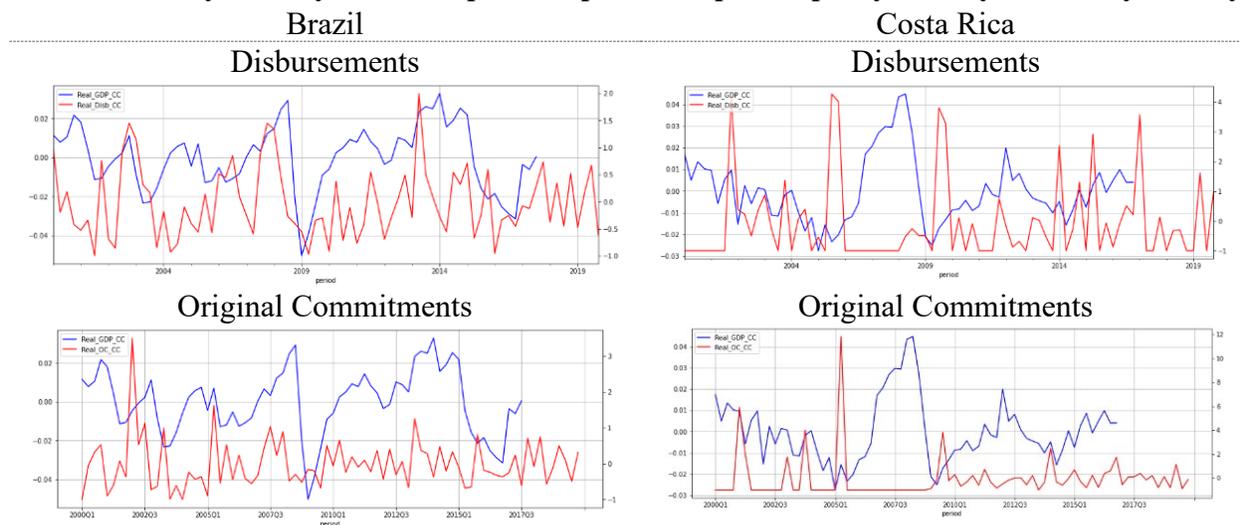


A6. Region-wise cyclical components plot



²⁵ Data discontinuities and gaps, particularly for quarterly real GDP series, significantly reduced the sample size of countries. The country-level skew towards LAC region and MICs should be kept in mind while interpreting results.

A7. Country-level cyclical components plot example for procyclicality/countercyclicality



A8. Correlation results for original commitments with 2-qtr, 3-qtr, and 4-qtr GDP lags

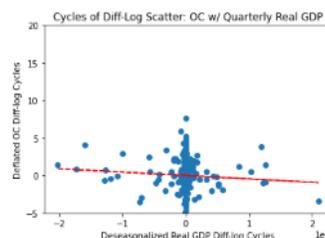
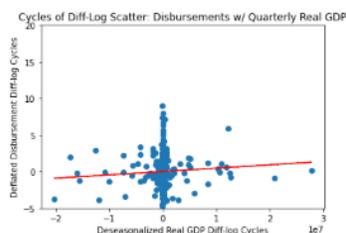
	Original analysis - No GDP lags	New analysis - 2-qtr GDP lags	New analysis - 3-qtr GDP lags	New analysis - 4-qtr GDP lags
Correlation Coefficient - Overall (r)	0.047	-0.011	0.016	0.008
<i>p-value</i>	0.04**	0.63	0.50	0.73
<i>Number of observations (n)</i>	1,845	1,840	1,835	1,830
Pre-GFC (r)	0.064	-0.045	0.019	0.012
<i>p-value</i>	0.09*	0.26	0.64	0.77
<i>n</i>	669	627	606	586
Post-GFC (r)	0.011	-0.010	0.014	0.005
<i>p-value</i>	0.7	0.74	0.63	0.87
<i>n</i>	1,176	1,213	1,229	1,244
Latin America & Caribbean (r)	-0.024	-0.014	0.025	0.014
<i>p-value</i>	0.45	0.66	0.43	0.66
Europe & Central Asia (r)	0.200	-0.062	-0.141	0.043
<i>p-value</i>	0.00**	0.37	0.04**	0.54
East Asia & Pacific (r)	-0.035	-0.017	0.009	-0.069
<i>p-value</i>	0.51	0.75	0.86	0.20
Middle East & North Africa (r)	-0.011	0.031	0.077	0.043
<i>p-value</i>	0.92	0.79	0.51	0.71
South Asia (r)	0.090	-0.040	-0.109	0.013
<i>p-value</i>	0.49	0.76	0.40	0.92
Sub-Saharan Africa (r)	0.008	-0.095	-0.094	-0.126
<i>p-value</i>	0.92	0.22	0.23	0.10

A9. Correlation results using diff-log cycles in place of cycle-trend ratio

Table 2: Results summary for Diff-log Cycles

	Disbursements w/ Real GDP	Orig. Commitments w/ Real GDP
<i>r</i>	0.060	-0.046
<i>p-value</i>	0.099*	0.185
<i>n (# of obs.)</i>	755	846

Correlation scatter plot



*Significant at 10% level of significance, i.e., there is a 10% probability of incorrectly rejecting the hypothesis of no correlation

**Significant at 5% level of significance, i.e., there is a 5% probability of incorrectly rejecting the hypothesis of no correlation (more robust)

A10. Country List

s no	country	region	inc grp
1	Argentina	Latin America & Caribbean	Upper middle income
2	Armenia	Europe & Central Asia	Upper middle income
3	Belarus	Europe & Central Asia	Upper middle income
4	Belize	Latin America & Caribbean	Upper middle income
5	Bolivia	Latin America & Caribbean	Lower middle income
6	Botswana	Sub-Saharan Africa	Upper middle income
7	Brazil	Latin America & Caribbean	Upper middle income
8	Cambodia	East Asia & Pacific	Lower middle income
9	Chile	Latin America & Caribbean	High income
10	China	East Asia & Pacific	Upper middle income
11	Costa Rica	Latin America & Caribbean	Upper middle income
12	Dominican Republic	Latin America & Caribbean	Upper middle income
13	Ecuador	Latin America & Caribbean	Upper middle income
14	Egypt, Arab Rep.	Middle East & North Africa	Lower middle income
15	Georgia	Europe & Central Asia	Upper middle income
16	Guatemala	Latin America & Caribbean	Upper middle income
17	India	South Asia	Lower middle income
18	Indonesia	East Asia & Pacific	Lower middle income
19	Jamaica	Latin America & Caribbean	Upper middle income
20	Kenya	Sub-Saharan Africa	Lower middle income
21	Korea, Rep.	East Asia & Pacific	High income
22	Mexico	Latin America & Caribbean	Upper middle income
23	Moldova	Europe & Central Asia	Lower middle income
24	Mongolia	East Asia & Pacific	Lower middle income
25	Paraguay	Latin America & Caribbean	Upper middle income
26	Peru	Latin America & Caribbean	Upper middle income
27	Philippines	East Asia & Pacific	Lower middle income
28	Russian Federation	Europe & Central Asia	Upper middle income
29	Rwanda	Sub-Saharan Africa	Low income
30	Saudi Arabia	Middle East & North Africa	High income
31	Seychelles	Sub-Saharan Africa	High income
32	Sri Lanka	South Asia	Upper middle income
33	Uruguay	Latin America & Caribbean	High income
34	Venezuela, RB	Latin America & Caribbean	Upper middle income
35	West Bank and Gaza	Middle East & North Africa	Lower middle income