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THE BALANCE OF THE TRIPOD: LITERACY–STABILITY DIVERGENCE AND ECONOMIC GROWTH IN DEVELOPED AND DEVELOPING ECONOMIES

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Abstract

Traditional composite indexes of financial development usually include only the first principal component of the pillars, implying that there is only a single latent dimension of financial development which accounts for all the variation relevant to growth. In this study, what happens when we assume otherwise? A two-stage PCA, computed on a balanced economy panel, using the same eight economies (four OECD: Australia, Canada, Finland, Germany and four SAARC: Pakistan, India, Bangladesh, Sri Lanka), over the period 2004–2022, reveals that the key dimensions of the financial tripod – inclusion, literacy, and stability – are empirically two-dimensional, with a second PCA axis orthogonal to the balanced-development composite and loading positively on financial literacy and negatively on bank stability explaining 41.2 percent of the variance in the pillars, and the combined share of these two axes being 87.1 percent. We view this second dimension as a literacy–stability divergence, that is, the degree to which the demand-side knowledge pillar grows faster than the institutional stability pillar, and examine its growth implications in a two-way fixed-effects framework estimated in first differences with standard errors of the Driscoll–Kraay type, a framework that directly tackles the non-stationarity, serial correlation and cross-sectional dependence problems typical of small-N macro-financial panels. The coefficient of Divergence growth in the developing sub-sample is strongly and robustly negative in all re-estimations with one country removed from the sample ($\beta = -6.07$, $p < 0.001$), but is exactly zero in the developed sub-sample. This is substantiated by a development-status interaction ($p < 0.001$). The results suggest that, in the context of developing economies, the financial tri-pod's growth premium is not just the advance of the pillars, but a measure of whether they move together or not and a sort of growth penalty for the output cost of literacy-led expansion without the commensurate institutional stability.

Keywords: Financial Tripod; Financial Literacy; Financial Stability; Financial Inclusion; Principal Component Analysis; Economic Growth; Driscoll–Kraay; Panel Data; OECD; SAARC

1. Introduction

Most empirical studies of multidimensional financial development follow a silent methodological rule: they sum up the indicators and most of the orthogonal ones are ignored, typically the first principal component of the sum. It's truly convenient. A one-dimensional index allows for a clean regression design, a simple policy language, and comparability between studies. However, the convention is based on an assumption which is seldom tested: that the discarded dimensions are noise. But the idea that the pillars of financial development are structurally interdependent, as the tripod of "inclusion" and "literacy" and "stability" argue, is in need of scrutiny, since the way in which the pillars move together or don't, may contain economic meaning that cannot

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be captured by a scalar summary of their average level. This paper looks at just that question. The second principal component of the three tripods is not noise (by a conventional definition) in a panel of 8 economies in two development environments that are very different. Its eigenvalue is 1.235, which is above the Kaiser criterion and it sums up with the first eigenvalue 87.1 per cent of total pillar variance. It has, theoretically, a legible loading structure with a strong positive loading for financial literacy (0.721), a strong negative loading for bank stability (−0.693), and an essentially null loading for financial inclusion (0.019). The component thus reflects a particular configuration and a policy relevant progress of the demand-side financial knowledge, as compared to the resilience of the institutions where it has to be transmitted. We term this dimension literacy–stability divergence. Why is it important for growth to be divergent? The tripod logic provides the mechanism.

Financial Development, however, can only be converted into useful access when the institutional structure is able to withstand the pressure of the resulting financial savings and financial credit demand, and vice versa, when financial sophistication is built on fragile intermediaries, newly-activated financial savings and financial credit demand are channelled into an otherwise unprepared system to price and bear the attendant risk (Lusardi & Mitchell, 2014; Minsky, 1986). These imbalances are growth neutral in well-developed financial systems where there are deep capital markets, deposit insurance, and well-established supervision. Divergence should be expensive in developing systems where it is the stability pillar which is the binding factor. The priors lead to a strong (falsifiable) asymmetry that a single-composite test cannot test, since the divergence dimension is factored out by the composite. The contribution comes in three folds. Conceptually, the study presents a transformation of the financial tripod into a two-dimensional framework, level and balance, and demonstrates that the balance dimension, rather than an artifact of the index construction process, is interpretable and stable and can be included in the Kaiser's list. Empirically, it gives the first (to our knowledge) estimates of the growth impact of tripod imbalance, and records a sharp asymmetry between the developed and developing side: the impact of tripod imbalance is large on the output loss of SAARC economies and small on OECD economies.

Methodologically, it accounts for these effects in a specification designed for the actual characteristics of the data, and not in spite of them. Per-country augmented Dickey–Fuller tests show that the component scores are integrated within countries, which means that we analyse them in first differences; two-way fixed effects eliminate country heterogeneity and common global shocks; and Driscoll–Kraay covariance estimation provides an inference that is robust to the presence of cross-sectional dependence and residual autocorrelation detected in the panel diagnostics. A leave-one-country-out jackknife then checks that the headline economy is not responsible for the result. The paper follows the following structure. Section 2 presents the hypotheses in the context and the literature on finance and growth and finance and architecture. The data, construction of indexes and the econometric approach are described in Section 3. The results and robustness battery is reported in Section 4. Section 5 is on interpretation, and Section 6 ends with policy implications and limitations.

2. Literature Review and Hypothesis Development

2.1 From Financial Depth to Financial Architecture

The notion that finance influences growth has evolved over a long time from Schumpeter's (1934) banker-as-selector to the endogenous-growth formalizations of King and Levine (1993) and the industry-level finding of Rajan and Zingales (1998). The first generation of cross-country evidence surveyed in Levine (2005) identifies the private sector credit supply, typically defined as private credit to GDP, as a good proxy for financial development and concludes that overall growth effects are positive. The second generation disturbed that reading. The depth–growth relationship weakened in post-1990 data (Rousseau & Wachtel, 2011); extra depth is correlated with slower growth for data beyond a threshold (Arcand, Berkes and Panizza, 2015; Law and Singh, 2014); and the same financial expansion that increases long-run growth can increase short-run fragility (Loayza & Ranciere, 2006). The new synthesis that emerged is that the size of financial system is not enough, but also the balance of financial system development from access, efficiency, and stability margins.

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Such a shift from depth to architecture inspires multidimensional structures, such as the financial tripod of inclusion, literacy and stability, where these three legs are mutually reinforcing (Rajan, 2009, 2010). There is a pre-existing micro-foundation for each leg. Inclusion broadens the wide intermediation possibilities and alleviates credit rationing that disproportionately affects small and informal borrowers, which is a result of asymmetric information (Stiglitz & Weiss, 1981; Sarma, 2008; Demirgüç-Kunt et al., 2022). On the demand side of literacy, it is a financial human capital, making better saving, borrowing, and portfolio choices decisions (Lusardi & Mitchell, 2014; Klapper, Lusardi & van Oudheusden, 2015). Stability keeps the intermediation channel intact, while the banking system is unstable in its tendency to ration credit procyclically and passively transmit shocks (Minsky, 1986; Laeven & Levine, 2009; Demirgüç-Kunt & Detragiache, 1998).

2.2 Interdependence, Tension, and the Case for a Second Dimension

While the literature on the tripod has focused on the complementarity of the pillars, some threads in the literature document tensions between the concepts of inclusion and stability – tensions with clear parallels to the literacy-led expansion, and a more recent systematic review illustrates that the inclusion–stability relationship is theoretically complex, and empirically bidirectional across country contexts (Damane & Ho, 2024). The financial literacy literature also suggests that the three dimensions of financial literacy (financial literacy, financial innovation, and financial inclusion) positively affect bank-level credit risk and stability indicators, though this effect depends on the institutional quality that can absorb the increased demand (Jungo, Madaleno, & Botelho, 2024). Behavioral evidence indicates that as people become more financially sophisticated, they purchase more of leveraged and higher-risk products that further stress shallow markets' intermediaries, even as they make better decisions about their own purchases. (Lusardi & Mitchell, 2014) In the course of the evolution of systems, Philippon and Reshef (2013) report that skilled labor is shifted to finance, where knowledge accumulation and systemic risk can co-move positively rather than counter-positively. The point is supported by the macro-level evidence: On average, financial education boosts financial development and growth, but recent cross-country estimates suggest the impact is far from uniform, and it seems to vary by the degree of maturity of the financial system it is applied to (Boikos et al., 2025).

If such tensions are actual then the pillars will not just come back down to a single latent factor; there will be at least one other dimension present in the correlation structure that will capture the arrangement of the pillars, but not the average level of them. Exactly this is what composite-index methodology is designed to be ready for. Both the OECD (2008) handbook and Jolliffe (2002) warn that keeping only the first principal component is valid only if subsequent eigenvalues are small; if they are not, then the set of indicators is truly multidimensional, and a scalar index will misrepresent it. Nevertheless, there has been a universal feature in empirical practice within the finance–growth field, and this study remedies this. This paper focused on the level dimension and its effects on firm performance and addressed what was lost out on the second dimension and the possibility of it having an effect on growth.

2.3 Hypotheses

Three hypotheses follow. The first is a measurement claim, and the second and third concern the growth content of the divergence dimension across development contexts.

- **H1.** The tripod's pillar structure is two-dimensional, with a second, Kaiser-eligible component reflecting a literacy–stability trade-off.
- **H2.** In developing economies, growth in literacy–stability divergence is negatively associated with GDP growth.
- **H3.** The growth effect of divergence differs significantly between developed and developing economies, being absent in the former.

3. Data and Methodology

3.1 Sample and Data Sources

The data comprises a balanced macro-panel of eight economies observed on an annual basis from 2004 to 2022 (152 country-year observations) comprising four OECD and four SAARC member countries (Australia, Canada, Finland, Germany, Pakistan, India, Bangladesh, Sri Lanka). The two blocs are designed

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in an intentional way to be “polar” in financial development, allowing for a “clean test” of the context-dependence while keeping the "apparatus of measurement" fixed. Pillar indicators are taken from the IMF Financial Access Survey, which last reported on 20 years of coverage up to 2023 (International Monetary Fund, 2024) (inclusion), the World Bank development indicators and Global Findex-aligned proxies (literacy), and the World Bank bank Z-score series (stability); GDP growth is the percentage growth of real GDP on an annual basis. Extended specifications include firm-level composites of return-on-assets and return-on-equity, built from 200 listed companies in the eight economies, as controls.

3.2 Index Construction

The index is built in the following two steps: a principal component design. The seven inclusion indicators and four literacy indicators are individually distilled to pillar indicators in the first stage. The pillar indices, inclusion, literacy and the bank Z-score are standardized and placed in a PCA computed on ordinary correlations between all 152 observations during the second stage. In the current analysis all second stage component scores were re-derived, with no change made from the standardized pillars scores, so that the second stage scores used for estimation correspond exactly to the reported eigenstructure, yielding eigenvalues of 1.3772, 1.2352, and 0.3876. The first component (PC1) is the balanced-development composite, with all three pillars loading positively, where the majority of the component is driven by inclusion. The second component (PC2) remains here as an object of analysis in its own right for the first time, and is signed so that the larger the score the more advanced the literacy is as compared to the stability. Since the variables PC1 and PC2 are orthogonal by construction there is no collinearity between them when they are used together in a regression and they provide a clear separation between level effects and configuration effects.

3.3 Econometric Strategy

However, four diagnosed properties of the data influence the specification choices, rather than convention. First, per-country augmented Dickey–Fuller tests (constant, one lag) show that GDP growth is stationary in seven of eight countries, as one would expect of the institutional measures, which are slowly trending over nineteen years. The regression of a stationary variable on integrated regressors will run into all the problems that Granger and Newbold (1974) described; therefore, the preferred specification is in the first differences, where both component scores are stationary. Second, an F-test comparison and the panel structure promote two-way fixed effects, which remove country heterogeneity over time, and, importantly, the common time-invariant shocks including the 2008-2009 crisis and 2020 coronavirus pandemic. Third, Pesaran (2021) CD tests of the residuals reject cross-sectional independence in all the specifications (CD statistics ranging from −2.9 to −3.4, with p-values < 0.01), and Durbin–Watson statistics suggest residual autocorrelation, which is addressed jointly by Driscoll and Kraay (1998) covariance estimation with a two-lag Bartlett kernel (consistent under general spatial and temporal dependence, and recommended for the panels in this form and size, with moderate to large T and small N, see Hoechle, 2007). Fourth, the dynamic GMM estimators, which require large N, are not available due to the fact that N = 4 in each sub-sample (Arellano & Bond, 1991; Roodman, 2009); instead, robustness is ensured by performing a leave-one-country-out jackknife, estimating each model without a single economy at a time. Each sample s (joint, developed, developing) has a baseline specification:

$$\Delta GDP\_it = \alpha\_i + \lambda\_t + \beta_1 \Delta PC1\_it + \beta_2 \Delta PC2\_it + \varepsilon\_it,$$

where α_i denotes country effects and λ_t denotes year effects. The extended specifications include differenced ROA and ROE composites. This is done by cross-context asymmetry (H3) in the pooled sample in the form of interactions of the component scores with a developing-economy indicator, estimated both in levels (where the two-way fixed effects and Driscoll–Kraay inference approach but do not resolve the trending-regressor concern), and with one-period lags to arrive at temporal precedence. Throughout, two tailed tests are reported as significant.

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4. Empirical Results

4.1 Descriptive Statistics

Descriptive statistics by development group are presented in table 1. It is instructive to compare the blocks. On average, developing economies have higher growth (5.30 percent compared to 1.79 percent) but it is also more volatile, and the pillar configuration is systematically different: the developed bloc is 0.86 SD above the balanced-development composite (PC1 mean of 0.428 versus −0.428) and, more strikingly, 1.31 SD above on the divergence score (PC2 mean of 0.653 versus −0.653). The SAARC economies therefore end up as a group in the stability tilted region, while the mature economies are structurally ahead of bank stability, as their institutional strength suggests they are. However, the within country movement in PC2 is still significant, as is the within country movement in both blocs, but not the difference in levels.

Table 1

Descriptive Statistics by Development Group, 2004–2022

Variable	Mean	SD	Min	Max	Mean	SD	Min	Max
	Developed (n = 76)				Developing (n = 76)			
GDP growth (%)	1.785	2.405	−8.076	5.951	5.299	3.095	−7.349	9.690
Financial Inclusion	0.283	0.921	−0.783	1.900	−0.283	1.001	−1.162	2.942
Financial Literacy	0.955	0.977	−0.241	3.426	−0.955	0.925	−3.229	1.459
Bank Z-score	17.443	6.597	9.891	48.997	21.453	12.494	3.523	39.348
PC1 (composite)	0.428	0.934	−0.679	2.545	−0.428	1.236	−2.223	3.397
PC2 (divergence)	0.653	0.763	−1.812	2.251	−0.653	1.020	−2.828	1.236
ROA composite	−1.382	0.598	−2.330	−0.204	1.619	3.299	−2.177	11.068
ROE composite	−0.887	0.816	−2.157	3.719	0.887	2.963	−1.379	21.987

Note. Columns 2–5 refer to the developed (OECD) sub-sample and columns 6–9 to the developing (SAARC) sub-sample. PC1 and PC2 are second-stage principal component scores of the standardized pillar indices; PC2 is signed so that higher values indicate financial literacy ahead of financial stability. ROA and ROE are firm-level composites.

4.2 The Two-Dimensional Structure of the Tripod (H1)

The second-stage eigen structure is given in Table 2. The first one accounts for 45.9 percent of the variance in the pillars, and its loadings are all positive, which is the typical tripod composite. The second component has an eigenvalue of 1.235, which is well above the Kaiser criterion and accounts for 87.1 percent of the cumulative explained variance. It has the opposite loading pattern that was predicted in Section 2, with literacy loading at 0.721, stability loading at −0.693, and the loading of inclusion being effectively zero at 0.019. The tripod, that is, has two components of systematic variation, advancement of the pillars in tandem and the difference between literacy and stability, and eliminating the second one results in the loss of more than 41 percent of the measured structure. The guidance of Kaiser (1960) and OECD (2008) is used as standard retention criteria for H1.

Table 2

Second-Stage Principal Component Analysis of the Standardized Pillars (N = 152)

Component	Eigenvalue	Proportion (%)	Cumulative (%)	FI loading	FL loading	FS loading
PC1 (composite)	1.377	45.91	45.91	0.787	0.417	0.456
PC2 (divergence)	1.235	41.17	87.08	0.019	0.721	−0.693
PC3	0.388	12.92	100.00	−0.617	0.554	0.559

Note. PCA on ordinary correlations of the standardized financial inclusion (FI), financial literacy (FL), and bank Z-score (FS) indices across all 152 country-year observations. PC2 is signed for interpretability with a positive literacy loading.

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4.3 Stationarity Properties and Specification

The results from the ADF are summarized in Table 3 per country, which defines the estimation design. The result is a rejection of a unit root at the five percent level in 7 of 8 countries, no rejection from the component scores, and mixed results from the composites based on the pillars: ROA and ROE. Differencing restores stationarity: the mean ADF statistics for ΔPC1 and ΔPC2 drop to −3.12 and −3.57 respectively, with four and six countries respectively rejected in eight countries, and the profitability composites rejected almost uniformly. These preferred growth regressions are therefore estimated in first differences; levels specifications are reported only for the interaction analysis, but with the caveat in Section 3.3, and with lagged variants serving as evidence of temporal precedence.

Table 3

Per-Country Augmented Dickey–Fuller Tests (Constant, One Lag)

Series	Mean ADF t	Rejections at 5% (of 8)	Series (differenced)	Mean ADF t	Rejections at 5% (of 8)
GDP growth	−3.23	7	ΔPC1	−3.12	4
PC1 (levels)	0.13	0	ΔPC2	−3.57	6
PC2 (levels)	0.16	0	ΔROA	−3.95	7
ROA (levels)	−2.50	4	ΔROE	−4.34	8
ROE (levels)	−2.90	2			

Note. Approximate 5% critical value −2.93 for the available time dimension. Rejection counts are countries whose ADF t-statistic falls below the critical value.

4.4 Divergence and Growth: Main Estimates (H2)

Table 4 presents the first difference two-way fixed-effects estimates and Driscoll–Kraay standard errors, which is the preferred specification of the study. Three attributes are prominent. First, the coefficient on the development sub-sample of the coefficient of the literacy growth term is large, negative, and well estimated: a one-standard deviation increase in the coefficient of literacy growth relative to stability corresponds to a 6.07 percentage-point decrease in the coefficient of GDP growth ($p < 0.001$), and the value is only slightly modified to −6.13 ($p = 0.001$) when the profitability controls are included. Second, the coefficient of the same variable in the developed sub-sample is practically zero (to four decimal places) which is the sharpest possible null coefficient that panel data can support. Third, the balanced-development composite ΔPC1 is statistically zero in all three samples after shocks are absorbed by the yearly effects, suggesting that the variation in the tripod that is relevant to growth is in the configuration and not the movement of the short run. The behavior of the model fit statistics is as predicted by differencing: The Durbin–Watson statistics range from 2.24 to 2.74, where the levels specifications had a large positive correlation, and the cross-sectional dependence is still present, but the covariance estimator handles it. H2 is supported.

Table 4

First-Difference Two-Way Fixed-Effects Estimates of GDP Growth (Driscoll–Kraay SEs)

	Joint (1)	Joint (2)	Developed (3)	Developed (4)	Developing (5)	Developing (6)
ΔPC1	−1.280	−1.264	−2.625	−1.879	−1.148	−0.826
	(0.871)	(0.932)	(2.011)	(2.158)	(1.034)	(1.075)
ΔPC2	−0.800	−0.838	0.000	0.235	−6.069***	−6.127***
	(0.932)	(1.137)	(2.318)	(2.405)	(1.471)	(1.755)
ΔROA		−0.017		−2.910		0.229
		(0.584)		(2.274)		(0.529)
ΔROE		0.039		0.154		0.037
		(0.150)		(0.191)		(0.140)
Observations	144	144	72	72	72	72
R^2 (within)	0.015	0.016	0.040	0.077	0.134	0.158
Durbin–Watson	2.571	2.571	2.735	2.733	2.270	2.241

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F (regressors)	1.52	1.07	2.01	1.91	8.52***	7.13***
Pesaran CD (resid.)	−3.11***		−2.98***		−3.25***	

*Note. Dependent variable: ΔGDP growth. All models include country and year fixed effects. Driscoll–Kraay standard errors (two-lag Bartlett kernel) in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.10. Pesaran CD statistics computed on residuals of the two-regressor models; rejection of cross-sectional independence motivates the covariance estimator.*

4.5 The Developed–Developing Asymmetry (H3)

The formal test of asymmetry in the pooled sample is performed in Table 5. The level interaction model shows that the PC2 main effect is not significant (0.436, p = 0.246), while the PC2 × Developing interaction is −2.373 and significant at the 0.1 percent level, with the conditional effect of the Developing interaction equal to −1.937. The lagged variant (with the current growth being regressed on the previous year's scores, thus imposing temporal precedence) portrays a consistent pattern with an additional layer of detail: the lagged composite shows a strong positive coefficient for the developed bloc (1.797, p < 0.001), which is offset by a large negative coefficient for the developing bloc (interaction −1.386, p < 0.001), while the lagged divergence interaction is negative (−1.026, p = 0.090). The pattern across the specifications, contemporaneous differences, levels interactions, and lagged levels, is uniform in sign and consistent with H3: the cost of growing away from a norm is uniform across specifications and is a cost.

Table 5

Pooled Interaction Models: Development-Status Asymmetry (Two-Way FE, Driscoll–Kraay SEs)

	Levels (1)	**Lagged levels (2)**
PC1	0.058 (0.347)	1.797*** (0.383)
PC2	0.436 (0.374)	1.217** (0.477)
PC1 × Developing	−0.287 (0.290)	−1.386*** (0.339)
PC2 × Developing	−2.373*** (0.511)	−1.026* (0.600)
Conditional PC2 effect, developing	−1.937	0.191
Observations	152	144
R^2 (within)	0.089	0.077
F (regressors)	8.92***	9.66***

*Note. Dependent variable: GDP growth. Column 2 uses one-period lags of all regressors. Standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.10. Levels estimates are reported with the caveat that the component scores are integrated within countries; the first-difference results of Table 4 constitute the preferred evidence.*

4.6 Robustness: Leave-One-Country-Out Jackknife

Table 6 re-estimates the key models with each country removed, so that in principle any country could be influential and generate any result. The developing-sample estimate in Panel A is the ΔPC2 coefficient; it is only negative and significant in all four exclusions, from −4.78 (p < 0.001, excluding Sri Lanka) to −6.88 (p = 0.008, excluding Bangladesh). The point of the headline finding then is not the result of a single economy, even a crisis economy like Sri Lanka is. In the same manner the pooled levels interaction is subjected to same treatment in all eight exclusions, and all interactions are negative and significant, except in the exclusion of Sri Lanka, where it becomes weak and marginally significant (−0.985, p = 0.091), and with sign reversal in the exclusion of Pakistan, it loses significance (1.837, p = 0.164). The sensitivity of the levels interaction to the first-difference estimate is as one might expect in view of the integrated regressors, and we therefore place primary reliance on the fully robust first difference evidence, and report the sensitivity of the evidence transparently. The graph in Panel A is shown in Figure 2.

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Table 6

Leave-One-Country-Out Jackknife

Panel A: ΔPC2 in developing FD model	Coefficient	p-value	Panel B: PC2 × Dev. in levels model	Coefficient	p-value
Baseline (all four)	−6.069	< 0.001	Baseline (all eight)	−2.373	< 0.001
Excluding Pakistan	−5.484	0.044	Excl. Australia	−2.082	0.001
Excluding India	−5.894	0.003	Excl. Canada	−2.874	0.002
Excluding Bangladesh	−6.881	0.008	Excl. Finland	−2.358	< 0.001
Excluding Sri Lanka	−4.783	< 0.001	Excl. Germany	−2.613	< 0.001
			Excl. India	−2.342	< 0.001
			Excl. Pakistan	1.837	0.164
			Excl. Bangladesh	−3.633	0.001
			Excl. Sri Lanka	−0.985	0.091

Note. Each row re-estimates the indicated model with one country excluded. Panel A: first-difference two-way FE model of Table 4, column 5. Panel B: levels interaction model of Table 5, column 1. Driscoll–Kraay inference throughout.

4.7 Graphical Evidence

The divergence score by country is shown in Figure 1. There are two patterns that can be seen with the unaided eye. The within-country trending that motivates the first-difference design can be observed from the trends upward across the sample, as indicated by the divergence trends. The first-difference design is driven by this within-country trending, which can be seen as a tendency of upward trends across the sample in terms of divergence. The two blocs manifest different positions in the divergence space: the OECD economies start from near balance and terminate their evolution in the region of high literacy overgrown configurations with little sign of growth cost; the SAARC economies begin stability tilted and end up stability tilted with Bangladesh and Pakistan at the extreme end. In Figure 2, the estimates underlying the confidence intervals in Panel A of Table 6 are shown, and all of these confidence intervals are strictly negative.

Figure 1

Literacy–stability divergence scores (PC2) by country, 2004–2022.

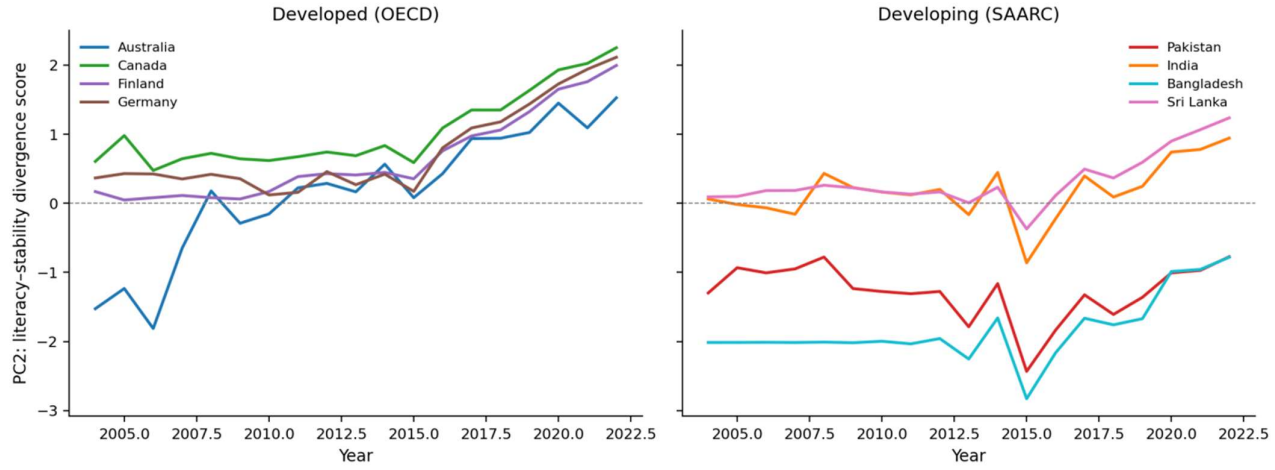

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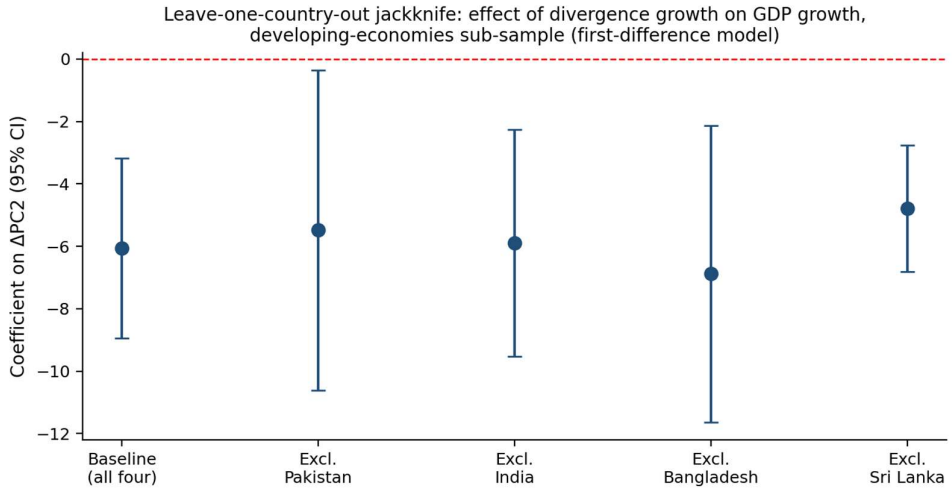
Figure 2

Jackknife estimates of the divergence-growth effect, developing sub-sample.



5. Discussion

5.1 Interpreting the Divergence Penalty

The main result allows for satisfactory economic interpretation. The most severe limitation on the 'tripod' of the banking system in the SAARC economies is the stability pillar—the banking system is shallower, supervisory capacity is thinner, and shock absorption mechanisms are weaker than in the OECD comparators. But, when financial capabilities grow in the context of financial illiteracy, new and financially capable households and firms require more sophisticated products, more leverage, and more market participation than fragile financial intermediaries can safely provide. The channel here is the same deepening effect on demand that is growth-enhancing in the long run, and is documented by the access–stability trade-off of Čihák, Mare and Melecky (2016) and fragility channel of Loayza and Ranciere (2006) in the presence of lagging institutional leg in the short run. The path of Sri Lanka is illustrative, not definitive; its divergence score rises steadily through the year of the 2022 crisis, and the jackknife shows that the estimate is not based on it.

The same is true of the exact zero for the developed bloc. Mature systems have buffers, deposit insurance, deep capital markets, diversified funding and experienced resolution regimes, which separate the sophistication of the domestic financial system from systemic stress. Divergence is a harmless product of financial development that is noticeable in Figure 1 in the form of a secular drift of the OECD institutions towards literacy-led configurations. The asymmetry thus does not stand in the way of the tripod thesis: the pillars are complements, and their imbalance is costly just at the point where there is most need for complementarity.

5.2 The Level Dimension and Temporal Structure

The null on the differenced composite should be carefully stated. It does not say that balanced financial development is not relevant for growth; it says that the year-to-year changes in the composite do not contain information on the level of growth at the time of the change, which is a severe test and annual institutional indexes are hard to meet. The lagged levels in Table 5 confirm a channel with a supply-leading perspective, as found by Patrick (1966) for the developed bloc; there is a significant positive relationship between the previous year's composite and current growth, though the relationship is significantly weaker for the developing bloc. This configuration dimension, however, is at the business-cycle frequency, that is, exactly what a stress-transmission mechanism would suggest.

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5.3 Contribution Relative to the Single-Composite Literature

Methodologically, it is important to note that the results are subject to a word of caution because of the large number of studies that attempt to measure multidimensional financial development through the use of a first principal component. In this dataset the second component that is discarded is not the residual noise—the component which contains the signal of the developing economy's growth. Perhaps some of the studies that report weak or unstable growth effects of composite financial development measures in emerging-market panels are seeing the effect of adding a growth-neutral level dimension to a growth-negative configuration dimension. The prescription for practice is very simple: report the full eigen structure, test all the Kaiser-eligible components of the outcome equation and let the data tell the story – as the OECD (2008) guidance has long recommended.

6. Conclusion, Implications, and Limitations

This study sought to find out if the financial tripod of inclusion, literacy and stability is adequately represented by one composite and concluded that it is not. A second Kaiser-eligible principal component, orthogonal to the composite, is interpretable as literacy–stability divergence, explaining 41 percent of the variance in the pillars. The effect of growth divergence on GDP growth is strongly context-dependent: after controlling for country fixed effects in a first difference, two-way fixed effects design with dependence-robust inference, the growth divergence has a large negative impact on GDP growth in the developing sub-sample, while the growth divergence effect in the developed economy is exactly zero, and the asymmetry is statistically significant. The results call for a sequencing, not just a scaling, problem in financial-development strategy in developing economies, in policy. The growth dividend from a national financial literacy campaign – a phenomenon now widespread across the SAARC region – is secured only when prudential capacity and bank capitalisation and resolution frameworks develop concurrently, and only when financial literacy promotion reaches a pace that matches the development of stability infrastructure are output costs measurable. The takeaway action is the need for coordination between the agencies which have the literacy agenda and those which own prudential policy, which are often institutionally separate. The findings for developed economies do not offer a complacency message nor an alarming one, they simply suggest that the economies have to diverge somewhere, which is where the absorption mechanism comes in: policy assets must be maintained –and that is the depth of the institutions.

These assertions were qualified. The panel is deliberately small and polar, comprising eight economies selected as a contrast of development contexts, and the findings from developing economies are most generally applicable to structurally similar developing economies in South Asia. The nineteen annual observations do not allow for dynamic GMM, and do not allow exploration of the lag structure beyond the contemporaneous lagged specification, which cannot be interpreted with the same precision as the latter. The level interaction, although in the same direction, is subject to sensitivity in individual country exclusion and should be used as supportive, not primary. Finally, it is natural to extend the banking-sector stability measure in bank Z-scores to incorporate market-based and macroprudential stability measures, to larger country samples if they allow for the use of heterogeneous-panel estimators, and to quarterly data if this allows for more complex dynamics, and to directly investigate the transmission mechanism through credit quality and intermediation spreads.

Contribution of Authors

All the authors participated in the ideation, development, and final approval of the manuscript, making significant contributions to the work reported.

Conflict of Interest Statement

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Informed Consent

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Data Availability

This study relies exclusively on publicly available secondary sources, including corporate disclosures, industry reports, and peer-reviewed literature, all of which are cited in the References section.

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