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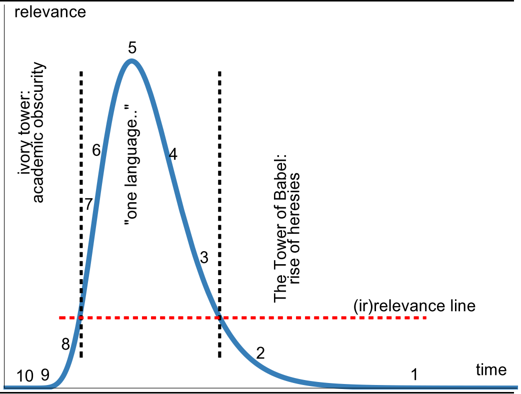
Views

Technical Brief

From ivory tower to the Tower of Babel: a lifecycle theory for monetary policy benchmarks

Stylized relevance of monetary policy benchmark:
see p. 3 for full sized version and legend



Source: Rosstat, VTB Capital Research

In this note, we discuss a theory of the lifecycle of monetary policy benchmarks. We believe that this describes how benchmarks originate in academia, (at times) rise from abstract obscurity to policy practice, but inevitably fall out of use as estimation tools mature and multiply. We illustrate our theory with a case study of the rise and fall of the output gap. Finally, we discuss what this might mean for thiking based on the steady state real rate, which is currently the dominant framework. Our tentative conclusions favour reasoning grounded on non-model based reported data in the spirit of the exercise in our [Technical Brief – Reading the leaves on the CBR's decision tree](). ,

The Old Testament tells of people attempting to build a tower that reaches to the heavens. In order to get closer to the ultimate truths, they used bricks and tar. However, as the tower got higher and approached the sky, the builders' common language was confused. Losing their ability to understand each other and coordinate their efforts, they were scattered over the face of the earth. We believe that the lifecycle of monetary policy benchmarks follows a similar pattern.

Theory outline

The frameworks for conducting monetary policy, such as inflation targeting, are built on broad ideas and are stable. However, implementing a monetary policy framework requires finding reliable benchmarks and 'operationalising' them. By 'operationalising' a benchmark, we mean setting up a rule that, conditional on the level of the benchmark, produces a recommendation to change (or not to change) the levels of the monetary policy instrument. Preferences for such benchmarks are more fluid.

Examples of benchmarks include the monetary gap, output gap, inflation expectations and deviations from the steady state real interest rate. We argue that monetary policy benchmarks pass through three distinct stages.

I. **Ivory Tower.** Before becoming widely known, benchmarks are conceived and incubated in academia. During this period, they are overly abstract for policy making and too theoretical to be mapped into observable data. Furthermore, when appealing to the concept it is usually necessary to provide a lengthy side note explaining the theory from which the benchmark originated, what it measures (and how), what ranges are considered appropriate and what the monetary policy response to deviations from the normal range call for. In our experience, household inflation expectations had this status pre-2013, while the steady state real forward looking key rate was relatively obscure until early 2016.

Referecens

1. Hauptmeister, S., Heinemann, F., Kappler, M., Kraus, M., Schrimpf, A., Trautwein, H. M., & Wang, Q. (2009). The Concept of Potential Output: A History of Origins. Projecting Potential Output, 1-52.

2. In early CBR's reports output gap is called "production gap". After a few iterations, the staff apparently switches to the modern terminology, while the underlying benchmark is not changed.

3. Laubach, T., & Williams, J. C. (2016). Measuring the natural rate of interest redux. Business Economics, 51(2), 57-67.

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II. **The whole world has one language.** For ideas that are able to transcend the hermetic world of academia, there is usually a watershed moment which turns a previously esoteric concept into a common currency. That is often a central bank governor deciding to reference it in a press conference or a press release, or it might be a top IFI executive deciding to use it in a highly visible report. From then on, there is a relatively solid consensus view concerning the benchmark and:

   i. what its normal ranges are (for example, "NAIRU is 6%", "output gap is zero in equilibrium" and "steady state real key rate is 2.5-3.0%");

   ii. how to measure it and, thus, what its current levels are (such as "steady state real rate is global risk free real rate + country risk", "output gap is HP filtered GDP", "household inflation expectations are captured by FOM's median 12mo ahead forecast");

   iii. how to operationalise the benchmark (thus, "NAIRU above 6% for several months calls for a lower key rate", "an output gap persistently and materially higher than 0% means accumulating risks of inflation").

III. **The Babel Tower and the rise of heresies.** As the benchmark morphs into being an operational basis for monetary policy, it increasingly attracts the scrutiny of academics and experts. Their investigations invariability reveal deficiencies in the prevailing estimation procedures, uncover dislocations between theoretical concept and its mapping into observed proxies and produce improved (or at least alternative) estimation approaches ("an HP filter produces series with spurious dynamic relations", "the simple output gap does not account for the financial cycle"). Time passes and consensus crumbles. A variety of hardly reconcilable approaches arise which are embedded in competing schools of thought. Instead of a point estimate (or a narrow range), there is now a wide confidence interval around the benchmark's current and normal levels.

Ultimately, the resulting ranges can no longer be operationalised.

The effort to approach ultimate truths ends up defeating early consensus and creating disparate communities with distinct methodologies and terminologies. The search for a new benchmark begins.

Now, let us turn from a general outline of the theory to an illustration.

Case study: rise and fall of the output gap

We explored the archives of the Monetary Policy Report (and its predecessor, the Inflation Report) to track down how the output gap emerged as one of the benchmarks that the CBR tracks, how it became the preferred summary metric of the overall health of economy and how it was eventually abandoned (yes, it was and more than two years ago now).

The time line we identified can be sketched as follows.

I. **Ivory tower.** It is usually suggested[2] that the emergence of the 'output gap' can be traced to 1962, when it was used in its modern sense in a speech by Robert Okun. The term was then largely absent from monetary policy discussions until a work by John Taylor in 1993, in which he proposed a famous formula for describing the Fed's interest rate policy, with the output gap as one of the ingredients.

II. **The whole world has one language.** The earliest mention of the output gap[2] by the CBR that we can find is in the [Inflation report for 1Q08](). At this point, the output gap receives only a brief mention and appears subordinate to a more well-established benchmark, the 'monetary gap'. The output gap is highlighted in a short sentence stating that it is positive, which might indicate a build-up of inflationary pressure, while a full paragraph was given over to a discussion of the level of the monetary gap (the favourite benchmark at that time). In its next issue of the inflation report, the CBR made no mention of the output gap at all, but in the subsequent publication devoted a whole box to discussing the monetary gap.

This attention to the benchmark is in line with our theory, we would argue, as it indicates not such much an increased focus but rather mounting uncertainty over the meaning and usefulness of that benchmark. The inflation report for 3Q08 sees the addition of a chart showing output gap estimates, marking a point when the output gap becomes firmly entrenched in the CBR's communications. It will thereafter be elevated to such status that in 1Q13, the output gap is treated as an appropriate summary of the overall health of the economy: “[i]nternal conditions are characterized by low growth rates of output and persistence of the moderate negative output gap.”

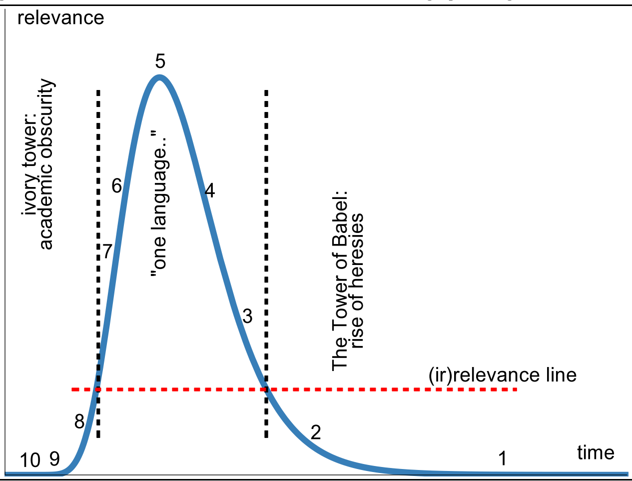
III. **The Tower of Babel and the rise of heresies.** By now, it is apparent what foreshadows the downfall of a monetary policy benchmark: research boxes exploring approaches to its estimation. For the output gap, that occurred in late 2015, when interest in the methods used to estimate the output gap spiked: The monetary policy reports for 3Q15 and 4Q15 feature research boxes exploring competing methodologies. Did a more developed toolbox and advanced understanding promote the use of the output gap for policy purposes? Quite the opposite: the same fate that befell the monetary gap in 2008 catches up with the output gap that supplanted it. The chart depicting the output gap forecast, which had become an integral part of the forward looking chapter of the Monetary Policy Report, was dropped from that publication in 4Q15.

The oblivion to which once popular benchmarks are consigned is so complete that, in addition to not getting even a single mention in the most recent Monetary Policy Report (for 3Q17), the output gap has even been erased from the glossary of useful terms at the back of the report. Multiplicity begets irrelevance.

More cases: Snapshot of the stylised level of relevance of various benchmarks to the CBR’s monetary policy (according to us)

Figure 1 shows a stylised level of relevance of various monetary policy benchmarks at the present moment, according to our view.

Figure 1: Stylised level of relevance of monetary policy benchmark



Source: VTB Capital Research

Figure 2: Comments on stylised level of relevance of monetary policy benchmarks

	Indicator	Stage	Comment
1	Monetary gap	III	No generally accepted estimates of current or normal levels, no recent references by policymakers.
2	Output gap	III	Excluded from official publications, wide variety of estimation approaches and methodologies.
3	Underlying/trend inflation	II	Wide variety of extraction techniques, but is relevant as far as it is featured in the CBR Board’s communications.
4	Inflation expectations	II	Wide variety of sources (enterprises, market, households) and extraction techniques, but is heavily featured in the CBR Board’s communications.
5	Real key rate	II	Narrow range of steady state, straightforward estimate of the current level given inflation forecast, heavily referenced by the CBR’s decision makers.
6	Wage – productivity wedge	II	Increasingly referenced by the Board, still emerging consensus over estimation.
7	Natural savings rate	II	Increasingly referenced by the Board, still emerging consensus over estimation.
8	Wealth channel	I	Pass-through of monetary policy to asset prices, not referenced in public Board communications.
9	Risk taking channel	I	Monetary policy impact on choices between safe and risky assets, not referenced in public Board communications.
10	Redistributive aspects	I	Effects of the monetary policy on various types of inequality, not referenced in public Board communications.

Source: CBR, VTB Capital Research

In general, we contend that benchmarks have a greater relevance when they a) are actively referenced by policy makers and b) have narrow ranges of estimates.

From this perspective, the real forward looking key rate is at its zenith (frequently referenced, the range of its steady state estimates is narrow 2.5-3.0%, estimates of its current level are trivial given inflation forecast). The monetary gap is the least relevant (we have not seen it referenced by policymakers in recent years, there is no consensus as to where current levels are relative to 'normal').

Instead of a conclusion: the consensus around "the steady state real key rate is 2.5-3.0%" is at its strongest today, and we expect it to become more fluid in 2018

We believe that the strength of the consensus around the range of the real forward looking rate as a benchmark for monetary policy in general and the steady state range of 2.5-3.0% is currently at its zenith. We would thus contend that it is going to dissipate gradually from now on.

Its strength is in no small part due to the fact that the environment over the past few years has provided no opportunities to test the range.

Now, though, such opportunities are getting closer. At the latest CBR press conference, Governor Elvira Nabiullina noted that the economy was likely to reach this level at some point in 2019.

As the economy approaches what is perceived to be steady state, we would expect to see discussions emerging about the "dynamic nature of equilibrium rates" and an increasing amount of work done on more robust and diverse estimation approaches.

Instead of r-star, we could end up with a constellation, or even a galaxy, of r-stars.

This will in time lead to an increasing understanding of the levels of uncertainty around equilibrium rates as a benchmark for monetary policy.

This is not a close call. These results are available academically, and it is simply a question of time before they pass through into policy practice. Notably, the authors of the now dominant approach to estimating equilibrium rates, Thomas Laubach and John Williams, warn[3]: "First, uncertainty about the natural rate of interest argues in favour of policy approaches that deemphasize the role of the natural rate in policy decisions and therefore make these decisions more robust to potentially mis-measured natural rates."

The findings are set to show once again that monetary policy cannot be reduced to operationalising the current benchmark of choice. A new benchmark is sure to emerge. Will it be the productivity-wage growth gap? Financial asset inflation? The trade-off between risky and safe assets growth on the balances of the financial sector?

It is impossible to know what is going to emerge as a new benchmark. The only supposition we can posit with any confidence is that a new one will emerge and that the current one will be supplanted.

Conclusion 1: Longer term key rate forecasts need to have wide confidence intervals due to the fact that approaches to setting them shift, and the real rate of 2.5-3.0% is not set in stone.

The other insight that we draw is that, given the fluidity of the decision-making frameworks based on estimated benchmarks, we advise giving more attention to hard data, non-model based indicators.

In an earlier exercise (see our Technical Brief – Reading the leaves on the CBR's decision tree, of 13 September), we attempted to identify the CBR's monetary policy rule. We show that various forward looking indicators and deviations from a 'steady state' are robustly rejected or put at the bottom of the relevance hierarchy by the estimation procedures. That said, we do observe a preference for various measures of data on inflation, FX and prior CBR commitments/communications.

Conclusion 2: The monetary policy rules we identified show that backward looking reported data, such as CPI and FX, have a greater weight than forward looking estimates and the deviation of monetary policy benchmarks from natural levels.

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	119	

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Sell	1	4%
Restricted	0	0%
Not Rated	0	0%
Under Review	4	18%
	22	

Source: VTB Capital Research as at 30 September 2017

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