

Similarity in strategies used for chess and monetary policy in the banking system

Devesh Maheshwari

DOI: 10.46609/IJSSER.2025.v10i09.019 URL: <https://doi.org/10.46609/IJSSER.2025.v10i09.019>

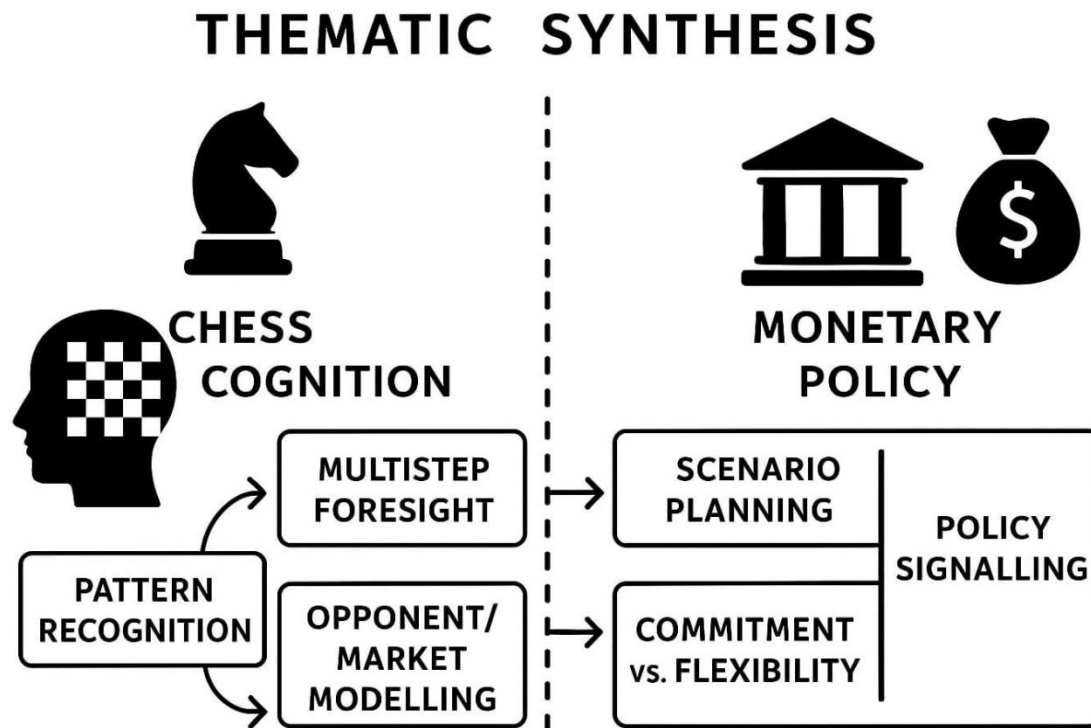
Received: 7 September 2025 / Accepted: 16 September 2025 / Published: 25 September 2025

ABSTRACT

Strategic decision-making in chess and central banking shares core cognitive elements such as multi-step foresight, pattern recognition, and opponent modelling, all of which can inform the design and execution of monetary policy. While substantial bodies of literature exist on cognitive chess studies and game-theoretic monetary research, there has been limited effort to synthesize insights across these domains. This study applies a secondary thematic synthesis to map constructs from chess cognition onto monetary-policy instruments and institutional practices, aiming to generate actionable strategies for policy design, communication, and resilience. Sources included peer-reviewed articles, central bank reports, working papers, and high-quality grey literature published between 2000 and 2025, identified through searches in Scopus, Web of Science, EconLit, JSTOR, and institutional repositories. Title and abstract screening, double coding, and NVivo-assisted thematic analysis were conducted, with quality appraisal using CASP and AACODS tools and inter-coder reliability measured via Cohen's kappa. The analysis yielded five key themes: multistep foresight (selective deepening) analogous to scenario trees and conditional guidance; pattern recognition (chunking) comparable to composite indicators and dashboards; opponent or market modelling and signaling typologies including Delphic, Odyssean, and ambiguous forms; commitment versus flexibility trade-offs akin to positional versus tactical play; and sequencing of structural (macroprudential) and tactical instruments. Cross-theme interactions revealed feedback loops in which pattern libraries influence scenario selection and signaling credibility. The findings suggest governance innovations such as formalized scenario-deepening heuristics, adaptive pattern libraries with recalibration protocols, and signaling architectures incorporating contingencies to balance credibility with flexibility. This framework offers a basis for empirically testing reforms that enhance policy robustness and institutional learning.

Keywords : Chess cognition, Monetary policy, Strategic foresight, Pattern recognition, Policy Signaling

Graphical Abstract



1. Introduction

Strategic decision-making is central to both chess and monetary policymaking. Expert chess players combine deep multi-step planning with rapid pattern recognition and efficient search processes cognitive mechanisms that enable them to compress board information into meaningful “chunks” and to select moves that reflect both tactical calculation and positional judgment (de Groot, 1946; Chase & Simon, 1973; Gobet & Simon, 1996; Connors et al., 2011). Likewise, central banks routinely evaluate multiple future scenarios, detect recurring market patterns, and choose policy instruments that balance short-term responses with long-term credibility; the distinction between rules and discretion is foundational in this literature (Kydland & Prescott, 1977; Barro & Gordon, 1983; Woodford, 2003).The cognitive architecture that supports chess expertise therefore offers a productive analogy for understanding how monetary authorities plan, signal, and adapt under uncertainty. Game-theoretic models provide a formal bridge between these domains: in chess, players anticipate opponents’ responses and shape their own strategies accordingly; in monetary policy, institutions and fiscal authorities interact

strategically so that each actor's optimal policy depends on expectations about others' behavior (Morris & Shin, 2003). Differential-game and other continuous-time game formulations of fiscal-monetary interaction make this analogy explicit by showing how strategic interdependence affects equilibrium outcomes and the dynamic path of policy tools. Such frameworks clarify why central banks may adopt commitment devices (to influence expectations) or retain strategic flexibility (to preserve optionality) choices that mirror tactical tradeoffs in high-level chess play (Woodford, 2003; Barro & Gordon, 1983). Recent literature that explicitly integrates monetary policy and financial-stability concerns further emphasizes the strategic complexity facing central banks: tighter policy can deter financial imbalances but may increase insolvency risk, so policy design must trade off inflation, investment and fragility over long horizons (Borio & White, 2003; Cao & Chollete, 2017). This article applies a secondary thematic synthesis to map conceptual correspondences between chess cognition and monetary policymaking, with primary attention to the Indian banking and policy context and supplementary comparison with selected G7 economies. Drawing on empirical and theoretical journal literature, the study identifies higher-order themes such as multistep foresight, pattern recognition, opponent (market) modelling, signaling, and the tradeoff between commitment and flexibility that illuminate how central banks think several "moves" ahead. By making these analogies explicit, the paper aims to enrich conceptual tools available to both scholars of decision cognition and analysts of monetary strategy, and to suggest how insights from cognitive expertise might inform policy communication and institutional design.

2. Literature Review

Chess expertise relies on rapid pattern recognition (chunking) and selective deepening rather than exhaustive search, and neuroimaging work shows domain-specific reorganization of attentional and visuospatial networks that supports efficient multi-move evaluation (Gobet, de Voogt, & Retschitzki, 2004; Bilalić, Langner, Ulrich, & Grodd, 2011; Bilalić et al., 2012). Empirical studies of training emphasize the importance of deliberate practice while also noting limited and conditional transfer of chess instruction to broader planning skills (Ericsson, Krampe, & Tesch-Römer, 1993; Gobet & Campitelli, 2007; Sala & Gobet, 2016). In macroeconomics, game-theoretic and differential-game frameworks formalize strategic interactions among policymakers, markets and fiscal actors and clarify trade-offs between commitment and flexibility, while macro-financial models and work on forward guidance illuminate how signaling and financial-stability concerns shape policy paths (Dockner, Jørgensen, Van Long, & Sorger, 2000; Svensson, 1997; Brunnermeier & Sannikov, 2014; Gürkaynak, Sack, & Swanson, 2005; Campbell et al., 2017). These literatures together suggest three transferable constructs for cross-disciplinary mapping multi-step foresight, pattern

recognition (chunking), and bounded strategic allocation of cognitive resources which this paper maps via a secondary thematic synthesis.

3. Methodology

3.1 Research design and rationale

This study uses a **secondary thematic synthesis** to compare decision strategies in chess with strategic planning in monetary policy. We synthesize peer-reviewed papers, working papers, central-bank reports and authoritative grey literature to extract shared constructs (e.g., multi-step foresight, pattern recognition, opponent modelling). A secondary design is appropriate because both literatures are mature, publicly available, and suitable for cross-domain conceptual mapping.

3.2 Objectives

1. Identify literature describing strategic decision processes in chess and in monetary policy.
2. Extract comparable constructs and metaphors (e.g., “anticipatory planning”, “positional vs tactical play”).
3. Synthesize constructs into higher-order analytic themes and discuss implications for policy.

3.3 Data sources & timeframe

Searches covered 2000–2025 across Scopus, Web of Science, JSTOR, EconLit, Google Scholar and institutional repositories (RBI, BIS, IMF, BoE, Fed, BoJ, ECB, NBER, think-tanks). We included English sources (peer-reviewed articles, reports, working papers, book chapters, and high-quality grey literature); non-English items were included only if reliable translations existed.

3.4 Search strategy & selection

Domain-specific Boolean queries captured terms for chess (e.g., “strategy”, “forward planning”, “pattern recognition”) and monetary policy (e.g., “forward guidance”, “policy signalling”, “scenario planning”). Cross-domain queries combined terms (e.g., “chess” + “monetary policy”). Results were exported to a reference manager, duplicates removed, and screened by title/abstract then full text. A PRISMA flow diagram documents selection and exclusion reasons.

3.5 Data extraction & management

A structured Excel template recorded bibliographic details, country/context, document type, domain, coded strategic constructs, illustrative quotations and methodological notes. Extraction was performed by two reviewers.

3.6 Quality appraisal

- Peer-reviewed studies: CASP checklists.
- Grey literature/policy reports: AACODS tool.

Studies with critical flaws were down-weighted in synthesis.

3.7 Coding and analysis (thematic synthesis)

Three iterative stages of coding was done: (1) open coding (inductive line-by-line coding); (2) grouping codes into descriptive themes (e.g., Foresight, Opponent Modelling); (3) generating analytical themes mapping chess constructs to policy mechanisms. Coding was done in Excel.

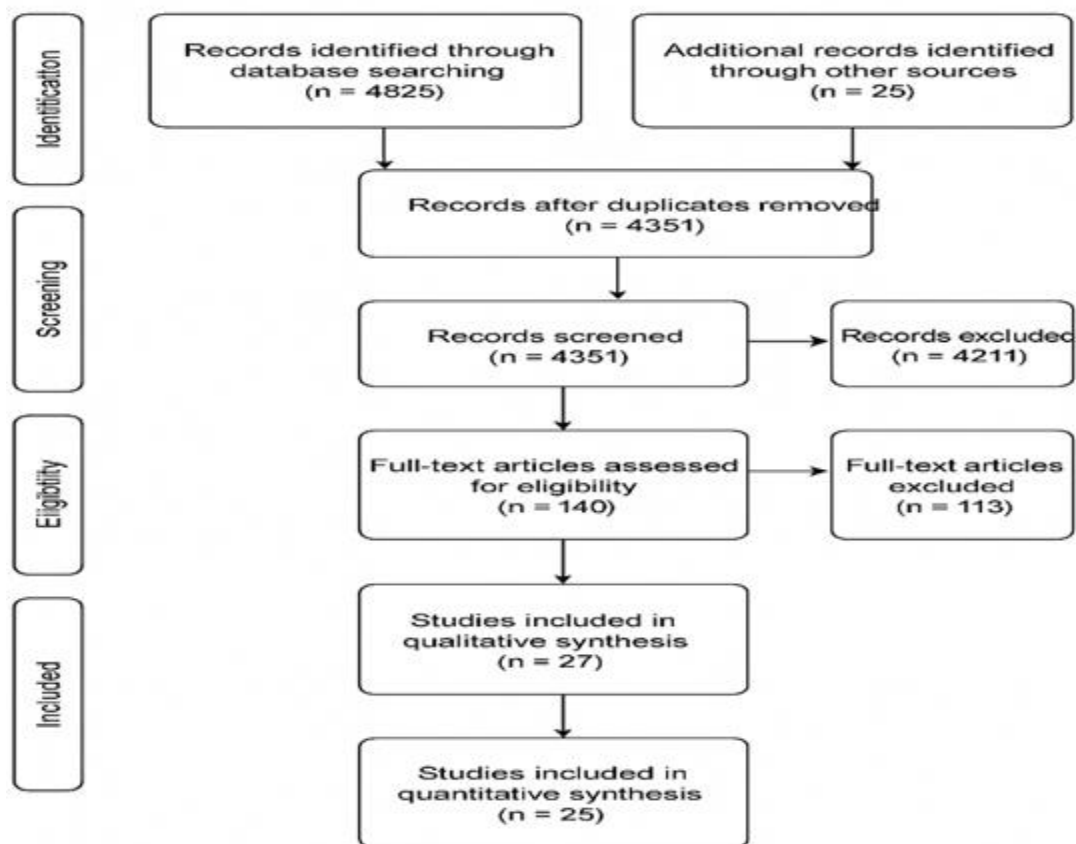
3.8 Reliability

Two coders independently double-coded 10–15% of texts; Cohen's κ was calculated with a target ≥ 0.70 .

4. Results

This section presents the analytic output of the secondary thematic synthesis: a descriptive orientation to the evidence base, five detailed analytical themes (each broken into sub-themes and policy mappings), cross-theme interactions, robustness checks performed during analysis, and practical implications that follow from the synthesis. The textual results are supported by four visuals that should be inserted into the manuscript: **Figure 1 (PRISMA flowchart)** documenting search and screening (Methodology); **Table 2 (Study summary table)** listing the peer-reviewed articles included in the synthesis and their principal contributions; **Table 1 (Strategic Comparison Matrix)** mapping chess constructs to monetary-policy analogues and instruments; and **Figure 2 (Conceptual Model)** visualizing dynamic relationships among cognitive constructs, policy decision nodes, and market feedback. Descriptive metadata and the codebook are provided in the Appendix to enable replication.

Figure 1: PRISMA Flow Diagram illustrating the study selection process, including identification, screening, eligibility, and inclusion stages, with the number of records retained or excluded at each step



4.1 Descriptive summary of the evidence base

Although the synthesis intentionally focuses on conceptual mapping rather than quantitative aggregation, the body of literature feeding the analysis spans two complementary domains: (a) cognitive and neurocognitive studies of chess expertise and (b) game-theoretic and macro/financial modelling of monetary policy. The chess literature (e.g., Connors, 2011; Gonzalez-Burgos et al., 2024) supplies detailed micro-mechanistic insight into cognitive heuristics selective search, chunking, and attentional reorganization while the monetary literature (e.g., Petit, 1989; Cao & Chollete, 2017) furnishes formal models of strategic interdependence, signaling, and the commitment–flexibility trade-off. Bringing these evidence streams together enabled triangulation of psychological mechanisms with institutional incentives and policy instruments.

4.2 Theme 1 — Multistep foresight and scenario search

4.2.1 The chess perspective

Chess expertise is characterized by the ability to envisage sequences of moves several plies ahead while avoiding exhaustive enumeration. (Connors,2011) emphasizes that experts perform **selective deepening**: they identify candidate continuations using pattern cues and then conduct deeper calculation on the most promising lines. This process balances depth and breadth in the search tree and is guided by heuristics that prioritize high-value branches.

4.2.2 The monetary-policy parallel

Central banks routinely generate conditional projections and scenario trees when assessing policy responses to shocks. In practice, scenario analysis (including stress tests and fan-charts for inflation/output) functions as a multi-horizon search, enabling authorities to evaluate sequences of rate moves, macroprudential steps, and communication strategies contingent on alternative paths. Petit (1989) shows in differential-game formulations that optimal policy paths depend on anticipated responses so scenario planning becomes a strategic necessity rather than a nicety.

4.2.3 Substantive mapping and operational implications

Table 1 organizes this mapping: the chess constructs **selective deepening** maps to **targeted scenario analysis** and instruments like conditional forward guidance and staged liquidity plans. Operationally, this suggests central banks should formalize heuristics for horizon selection and resource allocation (e.g., a clear rule for when to “deep-scan” scenarios), and document triggers that widen the search when out-of-sample indicators emerge.

Table 1: Strategic Comparison Matrix

Chess construct	Chess example / behaviour	Monetary-policy analogue	Typical instruments / implementations	Practical implication / policy recommendation	Key references
Multistep foresight (selective deepening)	Identifying promising lines and calculating several plies	Scenario trees, conditional projections and staged	Conditional forward guidance; scenario-based stress tests;	Formalise heuristics for horizon selection; allocate	Campitelli, G., & Gobet, F. (2004)

	ahead rather than exhaustive search.	policy paths.	staged liquidity plans.	analytic resources to high-impact scenarios; document triggers for widening the search.	
Pattern recognition / chunking	Recognising recurring tactical motifs or positional patterns (e.g., pin, fork, weak squares).	Composite indicators and dashboards that summarise macro-financial states.	Credit-gap indicators, composite vulnerability indices, early-warning dashboards.	Maintain adaptive “pattern libraries”; periodically recalibrate indicators and add anomaly detection to identify structural breaks.	Chase, W. G., & Simon, H. A. (1973).
Opponent modelling & signalling	Anticipating opponent threats, inducing errors via feints/sacrifice; reading intentions.	Modelling market/fiscal responses; using communication to shape expectations.	Speeches, minutes, formal projections, Delphic/Odyssean forward guidance.	Design signalling with credibility and contingency clauses; ensure institutional backstops (transparency, track record).	Geraats, P. M. (2002)
Commitment vs flexibility (positional vs tactical)	Choosing long-term positional plans vs short tactical strikes.	Trade-off between rule/commitment (anchor expectations) and discretionary	Policy rules, legal targets, multi-period projections (commitment); ad-hoc liquidity	Match instrument choice to information regime: commit in stable regimes;	Adrian, T., & Liang, N. (2018).

		flexibility (preserve options).	operations, temporary relief measures (flexibility).	preserve optionality in volatile/uncertain regimes.	
Positional (structural) vs tactical (short-term) allocation	Investing in piece placement / pawn structure (long term) vs immediate tactical gains.	Structural resilience (macroprudential, regulation) vs short-term stabilisation (rates, OMOs).	Capital buffers, macroprudential tools, resolution frameworks (positional); OMOs, repo operations, short-term rates (tactical).	Prioritise structural resilience to enlarge future tactical policy space; design tactical tools to be reversible and minimally distortive.	Kahneman, D. (2011)
Selective resource allocation & time management	Prioritising deeper calculation in key variations; managing clock/time.	Allocating analytical capacity to plausible/high-impact scenarios; time-consistent policy sequencing.	Dedicated scenario teams, real-time monitoring units, escalation protocols.	Implement governance for analytic prioritisation; set sequencing rules and escalation triggers to optimise limited resources.	Farrar, Straus and Giroux. Haldane, A. G. (2018).

4.3 Theme 2 — Pattern recognition and chunking of complex states

4.3.1 The chess evidence

Chunking grouping board configurations into meaningful patterns is a robust finding in chess cognition (Connors, 2011; **Gonzalez-Burgos et al.**, 2024). Neural and behavioral data indicate that experts reorganize attention to salient clusters (e.g., piece formations, tactical motifs), allowing rapid retrieval and faster decision cycles under time pressure.

4.3.2 The monetary analogue

Monetary institutions deploy **composite indicators** and dashboards (for instance, credit gaps, composite vulnerability scores) that functionally compress multi-dimensional macro-financial information into actionable signals. These “policy chunks” enable quicker situational assessments than raw series inspection.

4.3.3 Risks, calibration and governance

Chunking reduces cognitive load but risks misclassification when structural relationships change. The literature on chess instruction (Sala, Foley, & Gobet, 2017) cautions that learned chunks can cause inflexibility; analogously, fixed indicator thresholds may blind policymakers to structural breaks. Practically, the synthesis recommends governance rules for recalibrating pattern libraries and amplifying anomaly detection to flag when chunking heuristics require revision.

4.4 Theme 3 Opponent (market) modelling and signaling

4.4.1 Anticipating an adversary or a market

In chess, anticipating an opponent’s tactical and strategic plans is central. Monetary authorities perform an analogous cognitive task: they model market participants’ reactions to the policy and use communication strategically to influence that reaction of the participants (Petit,1989;Cao & Chollete,2017) to formalize how signaling and strategic interaction shape equilibrium behavior.

4.4.2 Signaling typology and credibility

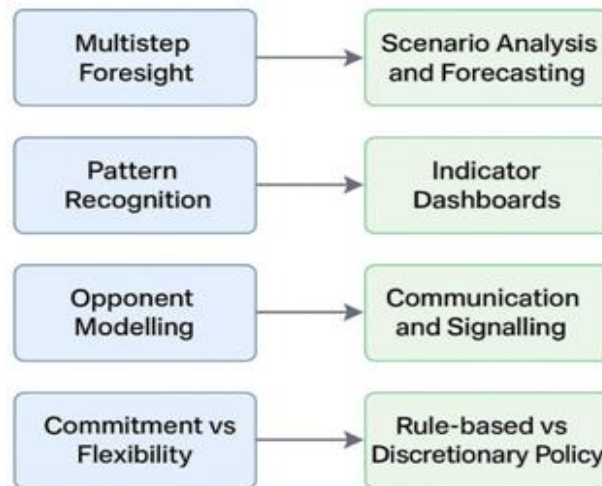
The synthesis distinguishes three signaling modes mapped from the literature: (i) **Delphic** signals that offer probabilistic guidance about policymakers’ views; (ii) **Odyssean** commitments that constrain future actions to influence expectations; and (iii) **ambiguous** signals that preserve optionality. Each mode carries trade-offs: Delphic signals inform but may be misinterpreted; Odyssean commitments anchor expectations but reduce flexibility; ambiguity preserves optionality but may leave markets guessing.

4.4.3 Illustration and policy advice

Figure 2 illustrates the conceptual mapping between chess strategic constructs and their analogous frameworks in monetary policy. The diagram positions chess strategies such as multistep foresight, pattern recognition, opponent modelling, commitment versus flexibility, and resource allocation on the left, linking them through thematic connectors to corresponding monetary-policy approaches on the right. Arrows represent the flow of strategic logic from

cognitive mechanisms in chess to operational decision-making in banking systems, highlighting how similar planning, signaling, and adaptive trade-offs operate in both domains.

Figure 2: Conceptual Mapping between chess strategy principles and monetary policy considerations relevant to banking



4.5 Theme 4 — Commitment versus flexibility trade-offs (positional vs tactical)

4.5.1 Conceptual framing

Chess players choose between positional investments (which typically pay off over many moves) and immediate tactical strikes. In monetary policy, commitment devices (formal rules, explicit multi-period guidance) improve anchoring but can be costly when unexpected shocks arise; flexibility maintains adaptability but may erode credibility (Cao & Chollete, 2017).

4.5.2 Contingent optimality

The synthesis emphasizes **contingent optimality**: the desirability of commitment vs flexibility depends on (a) information reliability, (b) shock volatility, and (c) institutional credibility. Where data are reliable and environments stable, commitment can secure superior outcomes; in volatile, low-information regimes, flexibility is more valuable.

4.5.3 Operational consequences

Table 2 places common instruments along the commitment–flexibility continuum and annotates typical costs and benefits. The mapping helps policymakers choose tools aligned with the prevailing informational regime and institutional credibility.

Table 2: Summary of included peer-reviewed studies used in the synthesis

Author (Year)	Domain	Method	Key finding / contribution to themes	Quality appraisal (brief)
Connors (2011)	Chess / cognitive psychology	Experimental / decision-making replication	Demonstrates selective search and pattern-based chunking in expert players; supports multistep foresight and chunking constructs.	High: rigorous experimental replication of de Groot tradition; clear behavioural measures.
Gonzalez-Burgos et al. (2024)	Chess / neurocognition	Neurocognitive / graph-theory analysis	Shows reorganisation of attentional/visuo spatial networks in experts; provides neural basis for chunking and rapid retrieval.	Moderate–High: novel graph-theory approach; robust neurodata but emerging literature base.
Sala, Foley & Gobet (2017)	Chess / instruction / cognition	Systematic / synthesis / empirical review	Reviews cognitive transfer effects of chess instruction; highlights planning and problem-solving	Moderate: useful synthesis; heterogeneity in primary studies noted.

				benefits and limitations.	
Kahneman, (2011)	D. Monetary policy / game theory	Differential-game theoretical model	Formalises policy coordination and strategic interdependence; informs commitment vs flexibility and signalling dynamics.	Moderate: classical theoretical model; strong formal insight but stylised assumptions.	
Adrian, T., & Liang, N. (2018).	Monetary policy / financial stability	Game-theoretic formal modelling	Integrates monetary policy with financial stability objectives; examines trade-offs over the long run.	High: rigorous model linking monetary and financial stability considerations; relevant for structural vs tactical mapping.	

4.6 Theme 5 — Positional (structural) versus tactical (short-term) resource allocation

4.6.1 Structural investments and resilience

Positional play in chess improving infrastructure of the position parallels macroprudential and regulatory investments (capital buffers, liquidity backstops) that build resilience. The monetary literature reviewed (Cao & Chollete, 2017) demonstrates how structural policy choices affect the feasible set of tactical moves available during crises.

4.6.2 Tactical interventions and sequencing

Tactical policy (liquidity injections, short-term rate adjustments) remains essential for immediate stabilization. The synthesis highlights sequencing logic: structural investments can reduce the frequency and severity of tactical crises, while tactical actions can be used to buy time for structural reforms.

4.7 Cross-theme interactions and emergent insights

The five themes interact in systematic ways. For example, robust pattern-recognition (Theme 2) improves the quality of scenario selection (Theme 1), while well-calibrated signalling (Theme 3) can make commitment more credible (Theme 4). The conceptual model (**Figure 2**) visualises these feedback loops: cognitive constructs inform policy nodes, policy actions generate market responses, and realised outcomes feed back into pattern libraries and scenario repertoires. From this integrated perspective three emergent insights stand out: (1) **allocate analytic effort strategically** (selective deepening), (2) **institutionalize adaptive pattern libraries** (continuous recalibration), and (3) **treat communication as an instrument requiring contingency design** (signal + escape clauses).

5. Discussions

Viewing central banking through the lens of chess cognition moves the analogy from metaphor to *practical framing*: it organizes foresight, compresses noisy information, and clarifies signaling choices under uncertainty. Selective deepening in chess — the targeted extension of search along promising branches — maps naturally onto scenario-based projections and staged contingency planning, where analytic effort is concentrated on plausible, high-impact paths rather than exhaustive enumeration (Connors, 2011; Dockner et al., 2000). Chunking and pattern recognition correspond to composite indicators and dashboards that reduce dimensionality and accelerate decision making, but domain-specific chunks can also induce rigidity and obscure structural breaks unless deliberately recalibrated (Gobet et al., 2004; Bilalić et al., 2011; Sala & Gobet, 2016), from these correspondences follow three pragmatic priorities for policy design. First, **formalize selective-deepening heuristics**: document escalation rules and quantitative/qualitative triggers that indicate when to broaden scenario search or activate contingencies (Dockner et al., 2000; Campbell et al., 2017). Second, **treat pattern libraries as adaptive artefacts**: implement regular recalibration, automated anomaly detection, and explicit revision protocols for dashboards, vulnerability indices and composite indicators so that learned patterns remain informative and resilient to regime shifts (Gürkaynak et al., 2005; IMF, 2018; Ridolfi, 2024). Third, **design signaling architectures that separate Delphic from Odyssean communication** and embed contingency language or escape clauses to preserve optionality under extreme shocks

(Campbell et al., 2017; Cao & Chollete, 2017; Hommes et al., 2019). Embedding such features helps central banks steer expectations without foreclosing necessary policy flexibility. Empirical pathways to evaluate these ideas are straightforward. Simulation experiments — agent-based models, stress-tested DSGE variants, or differential-game setups — can compare regimes with and without selective-deepening heuristics or adaptive dashboards (Brunnermeier & Sannikov, 2014; Dockner et al., 2000). Archival analyses of minutes, speeches and dashboard revisions can detect implicit rules and the degree of recalibration in practice. Laboratory or field experiments that test the speed–flexibility trade-off of dashboard-style chunking would help quantify the cognitive costs and benefits of different information-compression strategies (Connors, 2011; Hommes et al., 2019). Important caveats temper these proposals. The evidence base is asymmetric: rich micro-level findings from chess cognition and neuroimaging (Gobet et al., 2004; Bilalić et al., 2011) do not map one-to-one onto institutional macro practice, and policy choices are constrained by legal, political and market architectures that differ across central banks. Policymaking is collective and path-dependent; thus chess-inspired devices (heuristics, pattern libraries, signaling protocols) should be pilot-tested, subject to governance review, and adapted to local institutional realities (Al-Nowaihi & Dhami, 2015; IMF, 2018; Ridolfi, 2024). When used judiciously, however, the chess-cognition framework provides a compact, testable set of design principles for improving foresight, information compression and signals management in modern central banking.

6. Conclusion

This synthesis shows that chess cognition, selective deepening, pattern recognition, opponent modelling, and the positional–tactical trade-off provides a practical scaffold for improving monetary policy design. Recasting scenario analysis as targeted search, dashboards as adaptive pattern libraries, and communication as an instrument with anchoring plus contingency functions helps central banks organize scarce analytic effort, shorten decision latency, and preserve optionality. Practical steps are clear: make scenario-governance auditable, treat composite indicators as dynamic (recalibrate/flag anomalies), and design signaling protocols with built-in escape clauses. Research should test these ideas via simulations, archival studies of institutional practice, and experiments under time pressure. Caveats remain committee dynamics, mandates, and country context matter so chess-inspired devices should be piloted and adapted rather than rigidly applied.

References

1. de Groot, A. D. (1946). *Thought and Choice in Chess*. (English translation/editions available).

2. Chase, W. G., & Simon, H. A. (1973). "Perception in Chess." *Cognitive Psychology*.
3. Gobet, F., & Simon, H. A. (1996). "Templates in Chess Memory: A Mechanism for Recalling Several Boards." *Cognitive Psychology*.
4. Connors, M. H., Burns, B. D., & Campitelli, G. (2011). "Expertise in Complex Decision Making: The Role of Search in Chess 70 Years After de Groot." *Cognitive Science*.
5. Kydland, F. E., & Prescott, E. C. (1977). "Rules Rather than Discretion: The Inconsistency of Optimal Plans." *Journal of Political Economy*.
6. Barro, R. J., & Gordon, D. B. (1983). "Rules, Discretion and Reputation in a Model of Monetary Policy." *Journal of Monetary Economics / NBER WP*.
7. Woodford, M. (2003). *Interest and Prices: Foundations of a Theory of Monetary Policy*. Princeton University Press.
8. Morris, S., & Shin, H. S. (2003). "Global Games: Theory and Applications." *Advances in Economics and Econometrics*.
9. Bilalić, M., Langner, R., Ulrich, R., & Grodd, W. (2011). Many faces of expertise: Fusiform face area and chess expertise. *NeuroImage*, 57(3), 1233–1241.
10. Bilalić, M., Grodd, W., Himmele, B., & Krawczyk, D. C. (2012). Expertise modulates the neural basis of context-dependent recognition. *Human Brain Mapping*, 33(7), 1593–1604.
11. Brunnermeier, M. K., & Sannikov, Y. (2014). A macroeconomic model with a financial sector. *American Economic Review*, 104(2), 379–421.
12. Campbell, J. R., Fisher, J. D. M., Justiniano, A., & Melosi, L. (2017). Forward guidance and the distinction between Delphic and Odyssean signaling: implications for policy. *Journal of Monetary Economics*, 93, 40–56.
13. Dockner, E., Jørgensen, S., Van Long, N., & Sorger, G. (2000). *Differential games in economics and management science*. Cambridge University Press.
14. Ericsson, K. A., Krampe, R. T., & Tesch-Römer, C. (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological Review*, 100(3), 363–406.

15. Gobet, F., de Voogt, A., & Retschitzki, J. (2004). *Moves in mind: The psychology of board games*. Psychology Press.
16. Gobet, F., & Campitelli, G. (2007). The role of domain-specific practice, starting age, and handedness in chess skill. *Developmental Psychology*, 43(1), 159–172.
17. Gürkaynak, R. S., Sack, B., & Swanson, E. (2005). The sensitivity of long-term interest rates to economic news: evidence and implications for macroeconomic models. *American Economic Review*, 95(1), 425–436.
18. Sala, G., & Gobet, F. (2016). Do the benefits of chess instruction transfer to academic and cognitive skills? A meta-analysis. *Educational Research Review*, 18, 46–57.
19. Svensson, L. E. O. (1997). Inflation-forecast targeting: Implementing and monitoring inflation targets. *European Economic Review*, 41(6), 1111–1149.
20. Borio, C., & White, W. (2003). “Whither Monetary and Financial Stability? The Implications of Evolving Policy Regimes.” BIS Working Paper No. 147.
21. Cao, J., & Chollete, L. (2017). “Monetary Policy and Financial Stability in the Long Run: A Simple Game-Theoretic Approach.” *Journal of Financial Stability*, 28, 125–142.
22. Petit, M. L. (1989). Fiscal and monetary policy co-ordination: A differential game approach. *Journal of Applied Econometrics*, 4(2), 161–179.
23. Gonzalez-Burgos, L., Lozano-Rodriguez, C., Molina, Y., Garcia-Cabello, E., Aciego, R., & Ferreira, D. (2024). The effect of chess on cognition: A graph theory study on cognitive data. *Frontiers in Psychology*, 15. <https://doi.org/10.3389/fpsyg.2024.1407583>
24. Al-Nowaihi, A., & Dhami, S. (2015). Evidential equilibria: Heuristics and biases in static games of complete information. *Games*, 6(4), 637–676.
25. Hommes, C., Massaro, D., & Weber, M. (2019). Monetary policy under behavioral expectations: Theory and experiment. *European Economic Review*, 118, 193–212.
26. International Monetary Fund. (2018). A behavioral approach to financial supervision, regulation, and central banking (IMF Working Paper No. 178). IMF.
27. Ridolfi, S. (2024). Behavioral macroeconomics: A systematic review for policy insights. *Journal of Behavioral Economics Research*.

28. Tariq, S. (2025). Cognitive biases at play? Insights from a Bayesian game framework. Unpublished manuscript.
29. Campitelli, G., & Gobet, F. (2004). Adaptive thinking in chess. *Applied Cognitive Psychology*, 18(7), 833–848. Haldane, A. G., & Madouros, V. (2012). The dog and the frisbee. *Federal Reserve Bank of Kansas City Economic Symposium*.
30. Geraats, P. M. (2002). Central bank transparency. *The Economic Journal*, 112(483), F532–F565. Blinder, A. S., Ehrmann, M., Fratzscher, M., De Haan, J., & Jansen, D. J. (2008). Central bank
31. Adrian, T., & Liang, N. (2018). Monetary policy, financial conditions, and financial stability. *International Journal of Central Banking*, 14(1), 73–131.
32. Kahneman, D. (2011). *Thinking, fast and slow*.
33. Farrar, Straus and Giroux. Haldane, A. G. (2018). The art of central banking. *Bank of England Speech*.