

Asymmetric Regulatory Embeddedness and Post-Brexit Governance: Explaining Adaptive Convergence in the United Kingdom

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Abstract

Why has the United Kingdom repeatedly restored substantive compatibility with European Union (EU) regulatory norms despite formal withdrawal? This article introduces the concept of asymmetric regulatory embeddedness (ARE) to explain post-membership governance in highly integrated sectors. ARE captures the structural condition in which a former member state remains economically, institutionally and infrastructurally embedded within a dominant regulatory ecosystem, resulting in bounded autonomy after legal exit. The article theorises adaptive convergence as the mechanism through which divergence initiatives confront embeddedness-induced constraints and are incrementally recalibrated. Drawing on process tracing and discourse analysis of UK Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and sanitary and phytosanitary/pesticide governance (2019–2025), the study shows how market interdependence, epistemic infrastructure dependence, institutional path dependence and legitimacy pressures produce functional compatibility without formal obligation. The findings extend Europeanisation beyond hierarchical membership, conceptualising EU influence as structural and relational rather than coercive. It provides a dynamic framework for analysing regulatory governance under conditions of post-membership interdependence.

Keywords: adaptive convergence; asymmetric regulatory embeddedness; Brexit; post-membership alignment; regulatory governance; UK REACH

Introduction

The United Kingdom's withdrawal from the European Union (EU) was widely framed as the restoration of regulatory sovereignty. Brexit proponents promised autonomous rule-making capacity free from supranational constraint and anticipated meaningful divergence from EU standards across major policy domains (Prime Minister's Office, 2020). Yet several years after exit, the trajectory of UK regulation reveals a more complex pattern. In sectors such as chemicals and agri-food governance, formal legal autonomy has coexisted with persistent functional compatibility with EU regulatory norms (Asiamah, 2025a, 2025b; Jones and Burns, 2024). Divergence has been initiated and politically defended but repeatedly recalibrated in response to administrative, economic and credibility constraints. The puzzle, therefore, is not why adaptation occurs during membership but why regulatory autonomy after exit proves sectorally bounded and politically difficult to sustain.

This article argues that post-membership governance should be understood not as a transition from constraint to autonomy but as a reconfiguration of constraint. It advances the concept of asymmetric regulatory embeddedness (ARE) to capture the structural condition in which a former member state remains institutionally, infrastructurally and

economically embedded within the regulatory ecosystem of a dominant bloc, generating bounded autonomy despite formal legal withdrawal. Exit transforms the juridical relationship between state and bloc, but it does not dissolve the institutional architectures, epistemic infrastructures and market interdependencies co-produced during membership. Under conditions of asymmetric embeddedness, divergence is legally possible but operationally costly, uneven and politically mediated.

To explain how this condition translates into observable policy outcomes, the article introduces adaptive convergence (AC) as a dynamic political mechanism. Governments may pursue visible divergence to signal sovereignty or satisfy electoral incentives, but in highly embedded sectors, such initiatives encounter structural confrontation – manifested in duplication costs, capacity limits, trade friction or legitimacy pressures. These pressures prompt incremental recalibration, restoring functional compatibility whilst preserving the rhetoric of autonomy. The result is not a return to hierarchical control but a pattern of negotiated alignment within a structurally asymmetric environment.

The argument extends scholarship on Europeanisation, differentiation and post-membership governance. Whilst classical Europeanisation (Featherstone and Radaelli, 2003) research explains domestic adaptation under hierarchical authority, and de-Europeanisation accounts anticipate regulatory rollback following exit, a growing body of work highlights the persistence of regulatory entanglement beyond membership. Notably, McGowan's (2023) notion of 'orbiting Europeanisation' captures the continued proximity of UK policy to EU rules in specific domains. This article complements such insights by theorising the structural condition that generates this proximity. Whereas orbiting describes alignment trajectories, ARE specifies the institutional and infrastructural entanglement that constrains autonomy across sectors. Continued alignment is not anomalous but an expected outcome of enduring interdependence.

The empirical analysis examines two high-embeddedness sectors in the post-Brexit United Kingdom: chemical regulation [UK Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)] and agri-food governance under sanitary and phytosanitary (SPS) rules. These cases differ in dominant coalitions and political salience, enabling identification of distinct embeddedness channels. In chemicals, epistemic and data infrastructure dependence and industry cost transmission are central. In agri-food governance, conformity architectures and legitimacy constraints play a greater role. In the EU context, the outcome can be described as re-Europeanisation – alignment by practice without membership – but this is treated as an empirical outcome of embeddedness rather than as the primary theoretical lens.

The article makes three contributions. Theoretically, it develops a mechanism-based account of post-exit regulatory governance that bridges Europeanisation and international political economy literature. Conceptually, it reconceptualises EU influence beyond membership as structural and relational rather than hierarchical or coercive. Empirically, it demonstrates – through comparative process tracing and discourse analysis – how AC unfolds across sectors with distinct embeddedness profiles. More broadly, the findings suggest that sovereignty in advanced regulatory states is increasingly exercised within, rather than outside of, dense transnational governance systems.

The remainder of the article proceeds as follows. Section I develops the ARE framework and elaborates the AC mechanism. Section II outlines the research design. Sections III and IV trace the chemical and agri-food cases. Section V discusses theoretical

implications and scope conditions. The conclusion reflects on the broader implications for sovereignty and regulatory governance after exit.

I. Conceptual and Theoretical Framework

From Europeanisation to ARE

Europeanisation scholarship has traditionally conceptualised domestic policy adaptation as the result of hierarchical authority, legal obligation and socialisation operating within the EU (Börzel and Risse, 2007; Featherstone and Radaelli, 2003; Jones and Clark, 2024). From this perspective, withdrawal from membership appears to dissolve the principal mechanism through which EU influence is exercised. De-Europeanisation research, particularly in the Brexit context, has accordingly examined whether and how EU-derived policies are dismantled or recalibrated once legal obligations cease (Copeland, 2016; Bulmer and Quaglia, 2018; Burns et al., 2020). At the same time, a growing body of scholarship highlights the persistence of regulatory compatibility and institutional entanglement beyond formal exit, challenging assumptions of rupture (Asiamah, 2025a, 2025b; Gravey and Jordan, 2023; McGowan, 2023; Wolff and Piquet, 2022).

These debates raise a broader theoretical question: how should regulatory governance be conceptualised after legal withdrawal from a dense supranational regime? Neither classical Europeanisation nor straightforward de-Europeanisation fully captures the condition in which a former member state remains deeply integrated into the regulatory ecosystem of the bloc it has left. This article conceptualises that condition as ARE.

ARE refers to the structural situation in which a former member state remains institutionally, infrastructurally and economically embedded within the regulatory ecosystem of a dominant regulatory bloc, generating bounded autonomy despite formal legal exit. Exit terminates hierarchical rule-making authority, but it does not dissolve accumulated institutional architectures, epistemic infrastructures, economic interdependencies and administrative routines co-produced during membership. In sectors where embeddedness is dense, divergence becomes administratively complex, economically costly and politically mediated. Sovereignty is restored in legal form but remains conditioned in operational practice.

This formulation treats regulatory regimes as ecosystems rather than discrete legal instruments. Contemporary governance in highly technical and trade-intensive sectors comprises interlocking systems of standards, conformity assessment bodies, shared databases, expert networks and enforcement practices (Coen and Thatcher, 2008; Newman and Posner, 2018). Participation in such regimes generates cumulative institutional density reinforced by increasing returns and path-dependent processes (Mahoney and Thelen, 2009; Pierson, 2000). In the EU context, regulatory integration has entailed not only harmonised legislation but also shared scientific infrastructures, mutual recognition arrangements and cross-border oversight mechanisms (Damro, 2012; Lavenex and Keukeleire and Delreux, 2022; Schimmelfennig, 2013). When a member state exits, domestic regulators and firms do not disengage from these infrastructures instantaneously. Their administrative practices, professional networks and compliance systems remain structured around inherited architectures. Embeddedness is therefore institutional and infrastructural as much as legal.

ARE conceptualises this condition as asymmetric in two respects. First, dependence is uneven: the former member remains more reliant on access to the dominant bloc's regulatory ecosystem than vice versa, reflecting disparities in market size and infrastructural

centralisation (Damro, 2012; Keohane and Nye, 2012; Newman and Posner, 2018). Second, decision-making voice is reduced or eliminated post-exit, even as structural interdependence persists. The former member may formally choose whether to align, but it no longer shapes the evolving regulatory baseline. Autonomy is thus formally restored yet substantively constrained.

ARE complements but differs from adjacent frameworks. Unlike Europeanisation, it does not rely on hierarchical authority or conditionality, and unlike de-Europeanisation accounts, it does not assume that exit generates durable autonomy. It also departs from the Brussels effect, which foregrounds firm-level market incentives (Bradford, 2020), by centring state-level governance under conditions of infrastructural and institutional dependence. Whilst firms may transmit cost pressures, the explanatory focus here lies in the embeddedness of regulatory institutions rather than firm-level adaptation.

The distinction between ARE and the Brussels effect can be clarified along three dimensions. In terms of actor locus, the Brussels effect privileges firm-level behaviour as the engine of regulatory diffusion, whereas ARE foregrounds public regulatory institutions and their infrastructural dependencies. With respect to mechanism, the Brussels effect operates through market access incentives and global value chains, whilst ARE emphasises institutional path dependence, epistemic centralisation and embedded administrative architectures that render divergence costly to operationalise. Finally, in terms of scope, the Brussels effect is typically outward-facing, explaining how EU standards diffuse beyond its borders, whereas ARE captures inward constraint on a former member state whose governance remains structurally entangled with EU systems despite formal withdrawal.

Recent scholarship has also described the United Kingdom as ‘orbiting’ EU regulation after exit (McGowan, 2023), capturing the empirical trajectory of continued proximity to EU rules in specific domains. ARE specifies the underlying structural condition – comprising institutional, infrastructural and economic entanglement – that renders such proximity more likely in high-embeddedness sectors. In this perspective, orbiting Europeanisation can be understood as one observable manifestation of ARE in the EU context rather than as an alternative explanatory framework.

Embeddedness operates through several interrelated channels that vary across sectors. First, trade exposure increases the shadow cost of divergence, as regulatory separation generates non-tariff barriers, duplicated certification and supply chain disruption (Bailey et al., 2023). Second, conformity and border architectures create operational dependence on recognised testing, inspection and equivalence systems, meaning that divergence generates friction independent of tariffs (Nicolaïdis and Shaffer, 2005). Third, epistemic and data infrastructures embed regulation in shared scientific methodologies and databases, making autonomy administratively costly where access is lost (Flodgren et al., 2024). Fourth, institutional path dependence reflects the accumulated legal and administrative routines developed during membership, which create sunk costs and reinforce continuity (Mahoney and Thelen, 2009; Pierson, 2000; Sorensen, 2023). Finally, legitimacy and credibility constraints arise in politically salient domains, where public expectations of maintaining high standards limit the scope for visible divergence (Asiamah, 2022; Van Rooy, 2022).

Embeddedness is strongest where these channels converge. Crucially, ARE does not predict uniform outcomes. Its effects are conditional: sectors characterised by dense embeddedness are more likely to experience constrained autonomy than those where regulatory ties were historically looser.

Integrating Theoretical Foundations

To clarify the theoretical foundations of ARE, the framework integrates insights from three complementary traditions: historical institutionalism, interdependence theory and discursive institutionalism.

First, historical institutionalism provides the temporal logic. Institutions generate increasing returns, sunk costs and professional routinisation that make radical redesign costly (Pierson, 2000). In regulatory domains, harmonisation produces institutional complementarities across agencies, firms and epistemic communities. Mahoney and Thelen (2009) show that change often proceeds gradually, with reform attempts triggering *reactive sequences* that reinforce inherited equilibria (Hofmann and Yeo, 2024; Sorensen, 2023). In data-intensive sectors such as chemicals, efforts to construct autonomous regimes activate duplication costs and capacity constraints, pulling policy back towards EU-derived architectures. Post-Brexit regulatory ‘scaffolding’ has thus been layered onto, rather than displaced from, inherited frameworks (Whitten and Phinnemore, 2026).

Second, interdependence theory supplies the structural dimension. Keohane and Nye’s (2012) distinction between sensitivity and vulnerability interdependence clarifies why post-exit autonomy is uneven. Although UK–EU interdependence persists, the EU’s market size and infrastructural centrality reduce its adjustment costs relative to those of the United Kingdom. Recent work on structural and network power (Damro, 2025; Lehdonvirta et al., 2025) highlights how control over regulatory nodes – data systems, clearing infrastructures and standard-setting bodies – generates leverage without coercion. Exit removes voice but not exposure. ARE conceptualises this condition as asymmetric vulnerability embedded in regulatory ecosystems.

Lastly, discursive institutionalism (Schmidt, 2025) provides the political mechanism linking constraint to adjustment. Recent research shows how Brexit has been depoliticised and strategically articulated to sustain political commitments whilst masking structural constraints (Brusenbauch Meislová, 2019, 2023; Houde and Stockwell, 2026). ARE captures this dynamic as rhetorical autonomy – recalibration is framed as ‘efficiency’ or ‘competitiveness’, allowing compatibility to be narrated as sovereign choice. Discursive mediation renders structurally conditioned alignment politically sustainable.

ARE therefore synthesises institutional stickiness, asymmetric vulnerability and discursive legitimation into a framework for post-membership governance. Constraint persists without hierarchy, and convergence – where it occurs – reflects structured adaptation within embedded regulatory ecosystems rather than a return to formal supranational control.

AC Under Embeddedness

ARE defines the structural context within which post-exit governance unfolds. It does not eliminate political agency. Governments may pursue regulatory divergence to signal sovereignty or satisfy electoral commitments. However, in sectors characterised by dense embeddedness, such initiatives activate constraints transmitted through embeddedness channels – trade exposure, conformity architectures, epistemic infrastructures, institutional path dependence and legitimacy pressures.

The interaction between political assertion and structural constraint generates AC. AC refers to the process through which governments recalibrate divergence initiatives in

response to embeddedness-induced pressures, restoring functional compatibility whilst maintaining formal autonomy. It does not imply mechanical convergence; rather, it captures structured adjustment under asymmetric interdependence. It is therefore not a tendency towards equilibrium but a politically mediated process through which governments manage the tension between sovereignty claims and embedded constraints.

AC can be analytically understood as a sequence of ideal-typical phases. In practice, these phases may overlap, compress or recur rather than unfold linearly (see Figure 1 and Table 1). It typically begins with *assertive divergence*, as governments initiate visible regulatory separation – establishing domestic regimes, withdrawing from EU bodies or emphasising autonomy – to signal the restoration of sovereignty. These initiatives then encounter *structural confrontation*, as divergence activates resistance from material, institutional and normative constraints. Economic costs such as trade friction and regulatory duplication, administrative capacity limitations and legitimacy pressures expose the practical limits of sustained independence.

In response, governments engage in *pragmatic recalibration*, modifying policies to mitigate the negative consequences of divergence. This adjustment often takes the form of extending implementation timelines, negotiating equivalence arrangements, or reframing co-operation in the language of efficiency and competitiveness. Crucially, recalibration is incremental and adaptive rather than declarative: policy instruments shift whilst the rhetoric of autonomy is maintained. Over time, this process culminates in *functional re-alignment*, whereby domestic rules regain substantive compatibility with EU standards through technical harmonisation or administrative mirroring. Formal sovereignty remains intact, but regulatory practice operates within parameters closely aligned to the dominant regulatory ecosystem. These phases form a recursive pattern rather than

Figure 1: Asymmetric Regulatory Embeddedness and Adaptive Convergence. EU, European Union. [Colour figure can be viewed at wileyonlinelibrary.com]

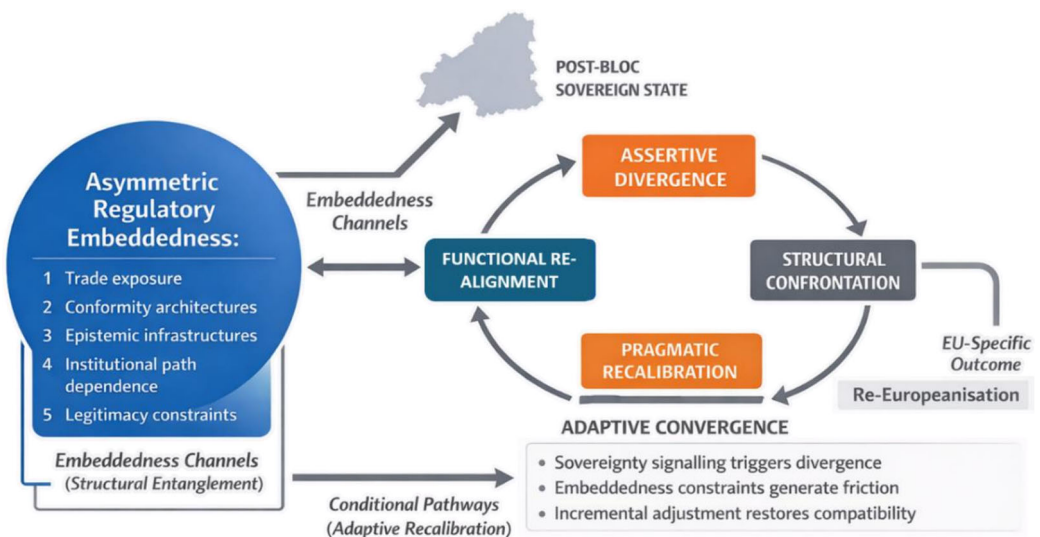


Table 1: Conceptual Framework: ARE and AC.

Analytical level	Concept	Core question	Mechanism	Key components	Empirical manifestation
Structural condition	ARE	Why is post-exit autonomy bounded?	Institutional, infrastructural and economic entanglement accumulated during membership	Trade exposure, conformity architectures, epistemic infrastructures, institutional path dependence, and legitimacy and credibility constraints	Persistent structural constraints on divergence
Transmission channels	Embeddedness channels	Through what pathways do constraints operate?	Cost transmission, administrative friction and reputational pressure	(1) Market dependence, (2) certification and border regimes, (3) data and scientific systems, (4) institutional feedback and (5) public and external credibility	Observable friction (cost estimates, delays, lobbying and procedural mirroring)
Political mechanism	AC	How do governments respond to embeddedness?	Iterative recalibration of divergence under constraint	Four ideal-typical phases (see below)	Structured adjustment without formal loss of sovereignty
Phase 1	Assertive divergence	Why initiate separation?	Sovereignty signalling and electoral incentives	Creation of domestic regimes, withdrawal from EU bodies and autonomy rhetoric	Visible divergence initiatives
Phase 2	Structural confrontation	What limits divergence?	Activation of embeddedness channels	Trade friction, duplication costs, data gaps and legitimacy concerns	Administrative bottlenecks, industry lobbying and cost reports
Phase 3	Pragmatic recalibration	How is divergence modified?	Incremental adjustment + discursive reframing	Deadline extensions, methodological alignment and efficiency narratives	Policy adjustments framed as pragmatism
Phase 4	Functional compatibility	What is the outcome?	Substantive alignment in practice	Technical harmonisation, procedural mirroring and informal co-ordination	Compatibility without restored hierarchy
EU-specific outcome	Re-Europeanisation	When does compatibility restore EU alignment?	AC within EU-centred embeddedness	High-embeddedness intensity + EU as dominant pole	Substantive EU-standard compatibility post-exit
Scope condition	Embeddedness intensity	When is AC most likely?	Cumulative density across channels	High embeddedness → rapid confrontation and recalibration; low embeddedness → durable divergence plausible	Sectoral variation

Abbreviations: AC, adaptive convergence; ARE, asymmetric regulatory embeddedness; EU, European Union.

a linear sequence. Divergence may be politically revived, but embeddedness channels continually shape the durability of separation.

The mechanism rests on three linked propositions. First, sovereignty claims generate incentives for visible divergence in post-exit contexts. Second, in sectors characterised by high embeddedness, such divergence activates material, institutional and legitimacy constraints. Third, governments respond through incremental recalibration and discursive reframing, restoring functional compatibility whilst preserving formal autonomy. AC thus operationalises how ARE shapes post-exit regulatory trajectories.

Scope Conditions and Expectations

ARE generates conditional expectations. Where embeddedness across trade exposure, conformity architectures, epistemic infrastructures, institutional path dependence and legitimacy constraints is high, divergence is more likely to encounter rapid structural confrontation and recalibration. Where embeddedness is weaker, sustained divergence or policy experimentation is more plausible.

Two expectations follow from the framework. First, the intensity of embeddedness conditions the likelihood of recalibration – the greater the cumulative embeddedness within a sector, the higher the probability that post-exit divergence will give way to AC. Second, the pathway through which recalibration unfolds is shaped by the dominant embeddedness channel within that sector. In highly technical domains, this is likely to centre on epistemic infrastructure dependence and data constraints, whereas in politically salient areas, it is more likely to be driven by legitimacy pressures and public expectations.

These expectations are assessed in the empirical analysis of chemical regulation and agri-food governance, which exhibit high but differently structured forms of embeddedness, thereby enabling evaluation of both embeddedness intensity and channel dominance effects.

II. Research Design and Methodology

This study adopts a qualitative comparative case design grounded in process tracing and discourse analysis to examine how ARE structures post-exit regulatory governance. The objective is not statistical hypothesis testing but analytical generalisation through mechanism-based explanation (Beach, 2017). Specifically, the analysis investigates whether sectors characterised by dense embeddedness exhibit the sequenced dynamics predicted by AC – sovereignty assertion, structural confrontation, pragmatic recalibration and functional compatibility – and whether these dynamics can be causally linked to identifiable embeddedness channels.

The research strategy is guided by the recognition that ARE operates through institutional, infrastructural and epistemic entanglements that are incremental, diffuse and often technocratic in character. Such mechanisms are unlikely to be captured through large-N designs and instead require within-case reconstruction of causal processes linking divergence initiatives to subsequent recalibration. AC is also temporally sequenced: divergence generates feedback effects that reshape policy trajectories over time. Process tracing is therefore employed to identify causal process observations that connect embedded structural conditions to observable policy adjustments (Collier, 2011). Given the

politically sensitive and discursively contested nature of post-Brexit regulatory governance, discourse analysis complements this approach by examining how political actors frame regulatory adjustment as sovereign pragmatism rather than as a response to external constraint (Schmidt, 2025). This is particularly important for capturing legitimacy and credibility pressures, where the politics of justification is central to the operation of constraint.

The study's epistemological orientation is abductive. Preliminary observations of regulatory developments between 2021 and 2023 suggested that divergence initiatives were being moderated by infrastructural and reputational constraints. These observations informed the refinement of the ARE framework and its AC mechanism, which are then evaluated systematically across two sectors exhibiting high but differently structured embeddedness.

The empirical analysis focuses on chemical regulation, specifically the creation and implementation of UK REACH, and agri-food governance, particularly SPS regulation and pesticide authorisation. Both sectors were highly integrated with EU regulatory systems prior to exit but differ in institutional configuration, political salience and dominant actor coalitions. Chemical regulation represents a highly technical and capital-intensive domain characterised by deep supply chain integration, reliance on shared scientific data and strong multinational corporate presence. Embeddedness in this sector is expected to be driven primarily by trade exposure, epistemic infrastructure dependence and institutional path dependence. By contrast, agri-food governance is socially embedded and politically salient, intersecting with consumer protection, environmental advocacy and farming livelihoods. Here, conformity architectures and legitimacy constraints are expected to play a more prominent role. This most different systems design within a single-country context enables assessment of whether AC operates through common structural dynamics whilst being mediated by sector-specific channels.

ARE is operationalised through five interrelated channels: trade exposure, conformity and border architectures, epistemic and data infrastructures, institutional path dependence, and legitimacy and credibility constraints. Documentary evidence was systematically coded to identify manifestations of these channels within each case. Trade exposure is captured through references to export dependence, compliance duplication costs and industry lobbying concerning market access. Conformity and border dependence are identified through discussions of certification regimes, mutual recognition arrangements, border friction and equivalence frameworks. Epistemic infrastructure dependence is reflected in evidence of data-sharing gaps, the need for scientific resource replication and administrative capacity constraints. Institutional path dependence is observed in the replication of EU-derived procedural models and the persistence of inherited regulatory templates. Legitimacy and credibility constraints are identified through public and political discourse emphasising 'high standards', consumer protection and reputational credibility. These indicators are then linked to the phases of AC to trace how embeddedness translates into observable policy recalibration.

The analysis relies primarily on documentary evidence triangulated across governmental, parliamentary, industry, civil society and media sources. This approach reflects both the sensitivity of elite decision-making in the post-Brexit environment and the relative transparency of formal regulatory documentation. The dataset includes parliamentary materials such as Hansard debates and committee hearings; government regulatory documents from the Department for Environment, Food and Rural Affairs (DEFRA), the

Health and Safety Executive (HSE) and the Food Standards Agency (FSA); industry submissions from organisations such as the Chemical Industries Association and the National Farmers' Union (NFU); and civil society materials from groups including the Pesticide Action Network and Greenpeace. These sources are complemented by media reporting and secondary analysis from outlets such as the Financial Times, Chemistry World, Reuters, the Institute for Government and the Centre for Inclusive Trade Policy. Documents were coded using a structured framework aligned with embeddedness channels and phases of AC.

The study does not incorporate original elite interviews. Given the political sensitivity surrounding regulatory alignment, policy-makers may have incentives to avoid explicit acknowledgement of embeddedness. The absence of overt acknowledgement is therefore treated as analytically meaningful rather than as a limitation. Triangulation across diverse sources mitigates potential bias and strengthens causal inference.

The analysis proceeds through within-case reconstruction followed by cross-case comparison. It begins with chronological mapping of key policy milestones between 2019 and 2025, establishing the temporal sequence of divergence and subsequent adjustment. Mechanism testing then links these events to embedded constraints and phases of AC, allowing identification of causal process observations. For example, where industry cost estimates are followed by policy recalibration such as deadline extensions. This is complemented by discursive analysis of political and bureaucratic language, focusing on how terms such as 'efficiency', 'high standards' and 'smart regulation' function as bridges between sovereignty narratives and pragmatic adjustment. These findings are then integrated across cases to assess whether AC occurs under distinct embeddedness configurations and whether channel dominance shapes the pathway of recalibration.

Causal inference follows a process-tracing logic in which hypothesised mechanisms must be observable through intermediate steps (Collier, 2011). Validity is strengthened through the use of causal process observations, triangulation across multiple source types, and pattern matching between predicted and observed sequences of AC. Limitations remain. Documentary sources privilege elite perspectives and may obscure informal co-ordination between UK and EU regulators. However, the technocratic and depoliticised nature of such co-ordination is consistent with the claim that embeddedness operates through infrastructural and institutional channels rather than overt hierarchy. Silences and strategic avoidance in public discourse are therefore treated as analytically meaningful features of the empirical record.

The temporal scope of the analysis spans 2019–2025, covering the end of the transition period, initial divergence initiatives and subsequent recalibrations. The study does not seek to project long-term trajectories but identifies emergent patterns consistent with ARE and AC. It focuses on sectors characterised by dense pre-exit integration and does not claim that all domains of post-Brexit governance exhibit similar dynamics. Rather, it advances a mid-range theoretical framework applicable to contexts in which ARE is sufficiently strong to shape post-exit autonomy.

III. Case Study 1 – Chemical Regulation (UK REACH)

This section traces the post-Brexit evolution of chemical regulation in Great Britain through the four phases of AC under ARE. Chemical regulation represents a sector

characterised by high embeddedness. It relies on dense epistemic infrastructures [notably European Chemicals Agency (ECHA) databases], harmonised conformity architectures, substantial trade exposure, entrenched institutional routines and high credibility sensitivity in environmental and public health governance. The case therefore provides a strong test of the framework's expectations that (1) institutional path dependence renders technical divergence costly, (2) market and infrastructural interdependence activate material constraints, and (3) governments employ technocratic framing to depoliticise recalibration. Evidence is drawn from parliamentary materials, official documents, industry submissions and sectoral reporting covering 2019–2025.

At the end of the transition period, the UK government created a national chemicals regime, UK REACH, by transposing Regulation (EC) No. 1907/2006 into domestic law under the EU (Withdrawal) Act. This move symbolised 'taking back control' whilst preserving continuity in substance. Two transitional mechanisms – grandfathering of EU registrations and downstream user import notifications (DUINs) – were designed to prevent market disruption. The HSE advised importers to submit DUINs within 300 days of 1 January 2021 to continue trading in Great Britain (HSE, 2020). This procedural design – grandfathering and DUINs – made divergence initially administrative and symbolic: the state signalled autonomy whilst preserving supply chain operability (HSE, 2020).

However, the institutional costs of separation appeared rapidly. ECHA warned that a central effect of the United Kingdom's withdrawal would be that UK authorities would have 'access to data on a far lesser scale than to EU Member State authorities', creating an important informational gap for risk assessment (ECHA, 2020). The House of Commons briefing warned that exclusion from ECHA would create 'significant implications for companies seeking to register substances' (House of Commons Library, 2021). Industry bodies calculated that replicating EU data could cost between £1 billion and £1.2 billion – roughly £300,000 per substance – and labelled UK REACH 'unsustainable without database access' (Chemical Industries Association, 2022; Environmental Audit Committee, 2022). The Environmental Audit Committee (2022) described the data gap as 'a major threat to the credibility of UK REACH'. These material pressures triggered rapid political and administrative responses consistent with the AC's structural confrontation phase.

From 2022 onwards, ministers shifted towards incremental adjustment. DEFRA launched consultations extending transitional deadlines and reviewing data requirements (DEFRA, 2022a, 2022b). Parliamentary debates in May 2023 described these measures as necessary 'to maintain operability and provide certainty to industry' (Hansard, 2023). In 2024, DEFRA proposed an alternative transitional registration model (ATRM) to cut data obligations by 30%–40% (DEFRA, 2024). Official language stressed 'proportionate regulation' and 'efficiency', reframing retreat as modernisation. This technocratic vocabulary exemplifies discursive recalibration, a mechanism that legitimises re-alignment under the guise of pragmatic governance.

On 1 April 2025, DEFRA announced a major fee overhaul – 'saving industry £40 million over six years' – presented as a Plan for Change to boost competitiveness rather than to mirror EU practice (DEFRA, 2025a). Chemistry World (2025) reported broad industry support for the cuts, although trade bodies continued to press for formal data sharing with ECHA. By late 2025, UK REACH had evolved into a hybrid regime: legally autonomous

Table 2: AC Under Asymmetric Regulatory Embeddedness.

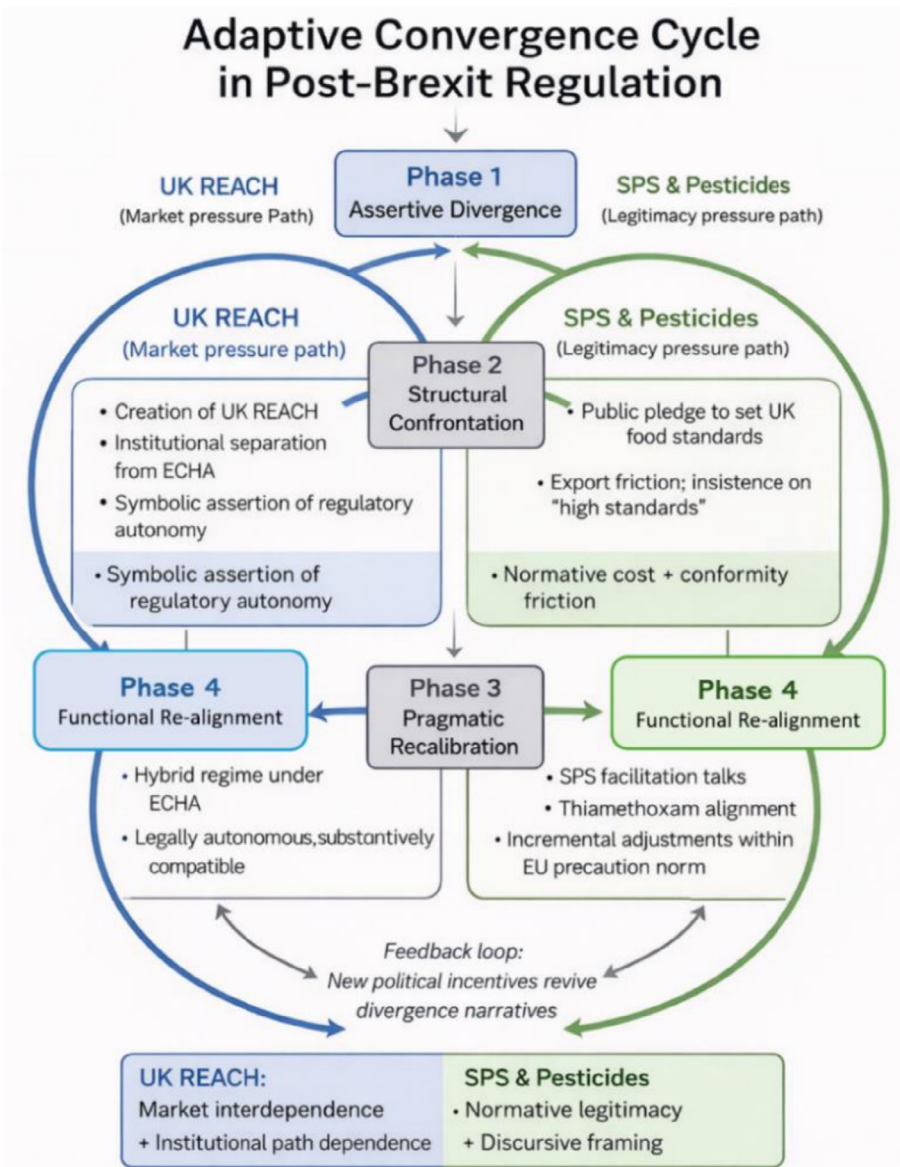
AC phase	Chemicals (UK REACH)	Key timeline	Indicators (chemicals)	Dominant embeddedness channels	SPS and pesticides	Key timeline	Indicators (SPS)	Dominant embeddedness channels
Phase 1: Assertive divergence	Creation of UK REACH and institutional separation from ECHA	2020–2021	Transposition of REACH into domestic law, the DUIS system and sovereignty rhetoric	Institutional path dependence (initially latent)	Public pledge to 'set our own food standards' and creation of the Trade and Agriculture Commission	2020–2021	Ministerial rhetoric, retention of FSA risk framework and TAC advisory role	Legitimacy constraints (initially latent) and conformity architecture retained
Phase 2: Structural confrontation	Loss of ECHA data access and high compliance duplication costs	2021–2022	£1–1.2 billion estimated data replication cost, EAC warnings and industry lobbying	Epistemic infrastructure dependence, trade exposure and institutional path dependence	Export friction under SPS checks and public insistence on 'high standards'	2021–2023	NFU calls for SPS agreement, border checks and political resistance to deregulation	Conformity architecture (SPS); legitimacy and reputational pressures
Phase 3: Pragmatic recalibration	Deadline extensions, ATRm and fee reforms	2022–2024	Reduced data obligations, regulatory consultations, £40 million fee reform and 'proportionate regulation' rhetoric	Administrative adaptation under embeddedness	Negotiation of SPS facilitation and technocratic framing of co-operation	2024–2025	'Reset' negotiations; emphasis on efficiency and competitiveness	Legitimacy management and conformity facilitation

Table 2: (Continued)

<i>AC phase</i>	<i>Chemicals (UK REACH)</i>	<i>Key timeline</i>	<i>Indicators (chemicals)</i>	<i>Dominant embeddedness channels</i>	<i>SPS and pesticides</i>	<i>Key timeline</i>	<i>Indicators (SPS)</i>	<i>Dominant embeddedness channels</i>
Phase 4: Functional compatibility	Substantive alignment of risk methodologies and continued reliance on EU scientific baselines	2024–2025	Mirrored risk assessment approaches, OEP concerns over capacity and industry demand for data sharing	Epistemic and institutional embeddedness	Refusal of 2025 thiamethoxam emergency authorisation and SPS facilitation progress	2025	Alignment with the EU’s precautionary stance and reduced SPS friction	Legitimacy dominance and conformity stabilisation
Outcome pattern	Legally autonomous but substantively compatible regime	By 2025	Hybrid regulatory architecture	High-intensity (Expectation 1 confirmed)	Legally sovereign but substantively compatible standards	By 2025	Convergence justified as domestic protection	Channel dominance (Expectation 2 confirmed)

Abbreviations: AC, adaptive convergence; ATRm, alternative transitional registration model; DUIN, downstream user import notification; EAC, Environmental Audit Committee; ECHA, European Chemicals Agency; EU, European Union; FSA, Food Standards Agency; NFU, National Farmers’ Union; OEP, Office for Environmental Protection; SPS, sanitary and phytosanitary; TAC, Technical Advisory Committee.

Figure 2: Adaptive Convergence in Post-Brexit UK Regulation. ECHA, European Chemicals Agency; EU, European Union; SPS, sanitary and phytosanitary. [Colour figure can be viewed at wileyonlinelibrary.com]



yet operationally aligned (see Table 2 and Figure 2). DEFRA’s guidance and HSE procedures remained modelled on EU methodologies, and the Office for Environmental Protection (2025) cautioned that the United Kingdom lacked sufficient capacity to manage perfluoroalkyl and polyfluoroalkyl substance risks without co-operation with EU authorities.

Overall, the trajectory of UK REACH is consistent with AC under high ARE. Assertive institutional separation was followed by confrontation with epistemic, economic and credibility constraints; these pressures prompted incremental recalibration; and the regime stabilised in a form substantively aligned with EU technical practice whilst preserving formal sovereignty. The case demonstrates how embeddedness channels structure post-exit governance in highly technical, trade-intensive sectors.

IV. Case Study 2 – Agri-Food Standards and Pesticide Governance (SPS)

This section examines post-Brexit agri-food and pesticide governance in the United Kingdom through the four phases of AC under ARE. Unlike chemical regulation, where epistemic infrastructure and market interdependence dominate, agri-food governance represents a sector in which embeddedness operates primarily through legitimacy constraints, conformity architectures and political salience. The case therefore provides a complementary test of the framework: where normative credibility and public trust function as the dominant embeddedness channels. Evidence draws on parliamentary debates, DEFRA and FSA documentation, industry statements and sectoral reporting from 2019 to 2025.

Following the transition period, ministers proclaimed that the United Kingdom would ‘set our own food standards’ (Hansard, 2020). Yet institutional continuity prevailed: the FSA and Food Standards Scotland retained the EU-derived, science-based risk-analysis framework governing food and feed safety (FSA, 2020, 2025). The FSA confirmed that ‘risk analysis remains the basis of assessing, managing and communicating food and feed safety risks’ and that its ‘top priority is that UK food remains safe and what it says it is’ (FSA, 2025). Rather than redesigning regulation, the government established the Trade and Agriculture Commission to advise on safeguarding standards in future trade deals (DEFRA, 2020). These measures illustrate assertive divergence at the level of political rhetoric and institutional repositioning, whilst procedural and scientific infrastructures remained anchored in inherited EU frameworks.

Divergence quickly encountered constraints transmitted through embeddedness channels. Trade exposure generated new certification friction for agri-food exports to the EU, prompting calls for an ‘enhanced SPS agreement’ to eliminate ‘unnecessary checks and paperwork’ (National Farmers’ Union, 2025a). The NFU and NFU Scotland warned that continued SPS barriers risked undermining competitiveness and advocated a veterinary-style accord covering ‘the fullest range of agri-food products’ (National Farmers’ Union, 2025b; NFU Scotland, 2025). Simultaneously, legitimacy constraints proved decisive. Public and parliamentary discourse hardened around maintaining ‘high standards’, with ministers repeatedly pledging that ‘chlorinated chicken and hormone-treated beef will not be imported into the UK’ (Hansard, 2020; The Guardian, 2020).

In this domain, divergence risked reputational damage and electoral costs. By 2022, the political cost of visible deregulation outweighed any symbolic sovereignty gains. These pressures activated two dominant embeddedness channels: conformity architectures (SPS certification and border regimes) and legitimacy constraints (public trust in food safety and environmental protection). Divergence thus encountered material and reputational limits consistent with the structural confrontation phase.

From 2024 onwards, the government recalibrated towards co-operative facilitation. In May 2025, the United Kingdom and EU announced progress towards SPS facilitation within a broader ‘reset’ framework (European Commission, 2025). DEFRA described the initiative as a means ‘to cut red tape for British exporters’ whilst ‘protecting our sovereign right to regulate’ (DEFRA, 2025a; Institute for Government, 2025). Reuters (2025) reported that the arrangement would reduce physical checks and paperwork without committing to dynamic alignment. The NFU welcomed the move as a ‘common-sense’ step to restore trade flows (NFU, 2025b). Officials framed the initiative in technocratic language – ‘frictionless trade’, ‘efficiency’ and ‘backing British farmers’ – depoliticising alignment as practical governance rather than policy reversal. As in the chemicals case, discursive recalibration presented convergence-compatible measures as pragmatic optimisation rather than retreat. Substantive alignment was embedded within technocratic framing.

The clearest indicator of functional re-alignment appeared in pesticide regulation. Between 2021 and 2024, the United Kingdom granted annual emergency authorisations for thiamethoxam (a neonicotinoid banned in the EU since 2018) to protect sugar-beet crops. In January 2025, DEFRA refused the 2025 application, publishing a Statement of Reasons explaining that ‘the risks to pollinators outweigh the benefits’ and that the decision was taken ‘to protect bees and the environment’ (DEFRA, 2025b). The Greenpeace UK’s policy director, Doug Parr, said: ‘This announcement is as sweet as honey. It’s a win for bees, butterflies and all pollinators, as well as every single person in this country, since our food supply is so dependent on them’ (The Guardian, 2025). This episode marked a decisive convergence with the EU’s precautionary stance, driven not by market dependency but by domestic legitimacy imperatives and environmental politics.

Negotiations over SPS facilitation were shaped by the Windsor Framework, which conditions simplified trade on credible border surveillance in Northern Ireland. The Financial Times (2025) reported that ‘the EU will not finalise a veterinary deal until the UK demonstrates effective enforcement of border checks’. This linkage reinforced the structural asymmetry of post-membership governance: formal sovereignty exists, but practical progress depends on regulatory credibility within EU-defined parameters.

Overall, the agri-food case exhibits AC under ARE, albeit through a distinct causal mix from UK REACH (see Table 2). Here, legitimacy constraints and conformity architectures function as the primary binding mechanisms, whilst institutional path dependence anchors scientific procedure. Recalibration stabilised governance in a form legally autonomous yet substantively compatible with EU standards. As in chemical regulation, sovereignty persists in juridical form, but policy practice reflects structured adjustment under embedded interdependence.

V. Analysis and Discussion

This section synthesises the empirical findings to evaluate the explanatory power of ARE and the mechanism of AC. It moves beyond case narration to assess how sectoral variation, political mediation and institutional constraints interact to shape post-membership governance. First, it compares the embeddedness configurations of chemicals and agri-food to demonstrate how distinct channel densities generate similar convergence outcomes through different pathways. Second, it examines the political and discursive mediation that renders recalibration compatible with sovereignty narratives across shifting

partisan contexts. Third, it clarifies the framework's scope conditions through a contrastive illustration from financial services. The section concludes by situating ARE within broader debates on Europeanisation, regulatory diffusion and post-membership governance, demonstrating that convergence in the UK case reflects structured adjustment under enduring interdependence rather than hierarchical coercion.

Embeddedness and Sectoral Pathways of AC

Across both cases, the evidence supports the article's core claim that post-membership regulatory governance in highly integrated sectors is structured by ARE and mediated through AC. In each domain, divergence was initially pursued as a symbolic affirmation of sovereignty. Yet embeddedness channels – economic, institutional, infrastructural and normative – activated constraints that prompted recalibration and restored substantive compatibility with EU regulatory practice.

In chemical regulation, AC unfolded through a sequence consistent with high-embeddedness intensity. The creation of UK REACH represented assertive divergence at the level of institutional form. However, exclusion from ECHA's data infrastructure, the projected £1–1.2 billion cost of replicating substance registrations, and concerns over regulatory credibility activated epistemic infrastructure dependence, trade exposure and institutional path dependence. These pressures triggered incremental recalibration: deadline extensions, reduced data requirements under the ATRm and fee restructuring. By 2025, UK REACH remained legally autonomous yet substantively compatible with EU methodologies. This trajectory illustrates Expectation 1: high cumulative embeddedness increases the likelihood that divergence will give way to AC.

In agri-food and pesticide governance, the mechanism operated through a different channel configuration. Here, legitimacy constraints and conformity architectures dominated. Early rhetoric emphasised regulatory freedom and differentiation, but export friction under SPS procedures and domestic insistence on maintaining 'high standards' generated political and reputational costs. Negotiations for SPS facilitation and the refusal to renew emergency authorisation for thiamethoxam in 2025 reflect recalibration under constraint. The pesticide decision restored compatibility with the EU's precautionary approach, not primarily due to market coercion but because domestic legitimacy and environmental credibility functioned as binding constraints. This confirms Expectation 2: the pathway of AC reflects the dominant embeddedness channel in each sector.

The comparison highlights two distinct yet complementary transmission mechanisms. In capital-intensive and technically complex sectors such as chemicals, embeddedness operates primarily through epistemic infrastructure dependence and market interdependence. Industry coalitions convert transnational cost pressures into domestic policy advocacy, whilst institutional path dependence amplifies adjustment costs. In politically salient sectors such as food and environmental regulation, legitimacy pressures and conformity architectures constrain discretion. Public expectations regarding safety and environmental protection shape the boundaries of acceptable divergence. Although the dominant channel varies, both configurations culminate in functional compatibility under asymmetric embeddedness.

Political Mediation and Rhetorical Autonomy

The findings show that discursive reframing plays a critical mediating role in both cases. Ministers rarely acknowledge alignment explicitly. Instead, recalibration is framed as ‘efficiency’, ‘proportionate regulation’ or support for domestic competitiveness. This strategy – termed here rhetorical autonomy – preserves the symbolic capital of sovereignty whilst enabling technocratic adjustment. Discursive depoliticisation performs three functions: it shields governments from backlash by rebranding convergence as domestic choice; it shifts accountability to administrative arenas; and it normalises hybrid governance arrangements in which domestic regulators mirror EU methodologies without formal obligation. This dynamic reinforces the argument that AC is politically mediated rather than mechanically imposed.

It is worth noting that post-Brexit regulatory governance unfolded across successive administrations with distinct political incentives. The Johnson government (2019–2022) foregrounded sovereignty claims as electoral validation of the 2016 referendum, institutionalising visible divergence in regulatory architecture (Prime Minister’s Office, 2020). The Truss interlude intensified deregulatory rhetoric but lacked administrative follow-through (Gravey and Jordan, 2023). Under Sunak (2022–2024), fiscal and market pressures tempered symbolic divergence, producing a more managerial tone (Brusenbauch Meislová and Martill, 2025). The Labour government elected in 2024 reframed the UK–EU relationship through a ‘reset’ agenda, prioritising trade facilitation and regulatory co-operation whilst maintaining formal red lines on single market re-entry (House of Commons Library, 2025). Simultaneously, the post-2024 rise of Reform UK as an electoral competitor on the right sustained political incentives for rhetorical hard-Brexit positioning (Brusenbauch Meislová and Martill, 2025; Toomey and Shepherd, 2023).

These shifting partisan constellations generated oscillating incentives for divergence and recalibration, reinforcing the recursive logic of AC. Structural embeddedness constrains policy space, but political actors determine how adjustment is narrated, sequenced and legitimised. AC therefore emerges not as technocratic drift but as a politically managed equilibrium in which performative autonomy and functional compatibility coexist. They address different audiences: sovereignty rhetoric reassures domestic voters, whilst regulatory alignment reassures economically embedded firms, investors and international partners.

The cycle persists not in spite of politics but through it. Political competition sustains incentives for symbolic divergence, whilst embeddedness channels impose material and reputational limits. Discursive mediation bridges the gap between these logics. AC is best understood as a political settlement under structural constraint – an ongoing negotiation between electoral positioning and the practical management of interdependence.

Scope Conditions: Financial Services as a Contrastive Case

It is worth emphasising that AC is conditional rather than universal. ARE generates differentiated expectations across sectors depending on the density and configuration of embeddedness channels. Where embeddedness is infrastructurally concentrated, economically asymmetric and institutionally path-dependent, divergence is likely to trigger rapid structural confrontation. Where embeddedness is more diffuse, diversified or mediated

through softer reputational mechanisms, sustained differentiation becomes more plausible. Developments in financial services provide a revealing contrast.

Financial services exhibit a distinct embeddedness profile from chemicals or SPS governance. Although the EU remains a major market for UK financial exports, the sector's external orientation is globally diversified rather than overwhelmingly EU-centred. Market access now operates through the EU's discretionary equivalence regime rather than automatic passporting rights, and the EU has granted only limited, time-bound equivalence decisions (notably for central counterparties). Unlike goods regulation, financial services do not rely on physical border inspection architectures or centralised epistemic infrastructures comparable to ECHA. Regulatory co-ordination occurs through multiple transnational fora (e.g., Basel) rather than a single EU-centred data regime (House of Commons Library, 2021; Reuters, 2023). Embeddedness therefore exists, but its density across channels is lower and less infrastructurally centralised.

Following withdrawal, this configuration enabled calibrated differentiation. The Financial Services and Markets Act restructured retained EU law and expanded domestic rule-making powers, whilst reforms to Solvency II (Solvency UK) were framed as enhancing competitiveness and tailoring prudential requirements to domestic priorities (Bank of England, 2024). These reforms demonstrate greater institutional discretion than was available in UK REACH, where exclusion from EU data systems generated immediate duplication costs. In financial services, divergence has been cautious and incremental, constrained by reputational and market stability concerns, yet more durable than in the high-embeddedness sectors examined above.

This contrast clarifies the scope conditions of ARE. The framework does not predict convergence as inevitable. It predicts that the likelihood, speed and depth of recalibration depend on embeddedness intensity. Chemicals and SPS governance represent dense configurations in which trade exposure, infrastructural dependence, institutional path dependence and legitimacy constraints reinforce one another, producing rapid structural confrontation. Financial services reflect a lower density configuration in which embeddedness operates primarily through reputational and market mechanisms rather than infrastructural centrality. In such contexts, strategic differentiation can persist without immediate AC.

The contrast also sharpens the political mediation argument. Where embeddedness penalties are diffuse or delayed, sovereignty signalling may translate into substantive regulatory differentiation. Where penalties are immediate and infrastructural, rhetorical autonomy remains largely performative. Embeddedness density therefore conditions the interaction between structural constraint and political incentive. Taken together, the cases demonstrate that withdrawal does not equate to functional autonomy. Legal sovereignty restores formal discretion but does not dissolve accumulated institutional interdependencies. Under conditions of ARE, divergence is structured rather than unlimited, and convergence – where it occurs – reflects conditional adjustment rather than compulsion.

Theoretical Implications and Alternative Explanations

The findings invite engagement with several established explanations of regulatory alignment. First, the Brussels effect (Bradford, 2020) attributes the external diffusion of EU standards to firm-level incentives – multinational companies voluntarily adopt EU rules

to secure access to its large market, thereby exporting those standards globally. The UK evidence partially accords with this logic. In chemicals, major producers and industry associations advocated compatibility to avoid costly market fragmentation. However, firm-level adaptation alone cannot account for the pattern observed here. The recalibration of UK REACH through the ATRm, fee restructuring and extended deadlines required deliberate governmental action. Likewise, SPS facilitation negotiations and the refusal to renew thiamethoxam authorisation reflect strategic state decisions rather than passive market-driven convergence. The Brussels effect captures part of the demand-side pressure but does not explain how and why the state reorganises domestic regulatory institutions under post-membership conditions. ARE complements this account by foregrounding state-level embeddedness as a primary constraint on post-membership regulatory autonomy.

Second, classical Europeanisation theory explains domestic adaptation through hierarchical authority, conditionality and legal obligation (Börzel and Risse, 2007; Featherstone and Radaelli, 2003). On this account, compliance follows from membership and supranational constraint. Yet the UK cases examined here unfolded outside formal membership and without juridical coercion. Alignment occurred in the absence of infringement proceedings, European Court of Justice jurisdiction or conditionality mechanisms. Influence persisted through infrastructural centrality (e.g., data systems), economic interdependence (trade exposure and market access) and epistemic authority (scientific methodologies and risk assessment standards). The findings therefore extend Europeanisation scholarship into a post-membership domain characterised by structural rather than hierarchical constraint. EU influence is not extinguished by exit; it is transformed in modality.

Administrative capacity constraints provide a third plausible explanation. The United Kingdom faced resource limitations in replicating complex regulatory infrastructures, particularly in data-intensive sectors such as chemicals. However, capacity deficits alone cannot explain the timing and political acceptability of recalibration. Capacity pressures generate friction, but they do not automatically translate into convergence. AC required discursive legitimation to reconcile material constraint with sovereignty narratives. Without rhetorical autonomy, recalibration might have been politically untenable. Embeddedness thus operates through the intersection of material limitations and ideational mediation, linking institutionalist and discursive perspectives.

More broadly, the cases illuminate the asymmetry inherent in post-membership governance. The United Kingdom retains the formal capacity to diverge, yet it no longer participates in shaping the evolving EU regulatory baseline. Decisions taken by EU institutions continue to structure the benchmarks against which UK rules are measured, even in the absence of a direct rule-making voice. Sovereignty is juridically restored but operationally bounded. This asymmetry generates a paradox: autonomy in form coexists with constraint in practice. Democratic accountability becomes more complex as alignment proceeds through delegated authority, regulatory guidance and technical statutory instruments rather than overt legislative re-entry into EU frameworks.

Synthesising across sectors, AC under ARE generates a recurrent pattern: assertive divergence, activation of embeddedness constraints, pragmatic recalibration and stabilisation in a condition of functional compatibility. The cycle may reactivate as political incentives for differentiation resurface, producing oscillation rather than rupture.

Post-membership governance thus appears neither as linear de-Europeanisation nor as concealed continuity but as structured adjustment within enduring interdependence.

Theoretically, the analysis advances a framework for understanding regulatory governance beyond the membership condition. ARE reconceptualises influence as relational and infrastructural rather than coercive. It shifts the analytical focus from formal rule-making authority to embeddedness within regulatory ecosystems comprising trade flows, data systems, conformity architectures and epistemic networks. AC specifies the dynamic mechanism linking these structures to political recalibration.

Methodologically, the study underscores the value of combining process tracing with discourse analysis to identify how structural pressures and political narratives interact over time. Quantitative indicators (e.g., projected duplication costs, trade exposure levels and equivalence decisions) reveal embeddedness intensity, whilst discursive shifts expose how recalibration is legitimised. Future research could extend this framework to additional sectors, explore longitudinal persistence beyond 2025 or apply ARE comparatively to other post-membership or differentiated integration contexts such as Switzerland or Norway.

Conclusion

This article has explained why, despite formal withdrawal from the EU, the United Kingdom has repeatedly restored substantive compatibility with EU regulatory norms. It argued that post-membership governance in highly integrated sectors is structured by ARE: a condition in which institutional legacies, epistemic infrastructures and market interdependence generate bounded autonomy after legal exit. AC specifies the political mechanism through which this constraint operates. Across chemical regulation and agri-food governance, divergence initiatives were initially pursued as visible affirmations of sovereignty but subsequently confronted embedded structural pressures, prompting recalibration and functional re-alignment in practice.

The analysis demonstrates that these cycles are not purely technocratic. They are politically mediated. Sovereignty signalling intensified under conditions of intra-party Eurosceptic pressure and electoral competition from hard-Brexit actors, including the post-2024 rise of Reform UK. Conversely, leadership transitions, economic constraints and diplomatic recalibration – most notably under Labour's post-2024 'reset' agenda – shifted incentives towards trade facilitation and regulatory co-operation. AC reflects the interaction of structural embeddedness and partisan strategy, rather than the erosion of sovereignty per se. Performative autonomy satisfies domestic political audiences; functional compatibility stabilises international economic relationships.

The findings extend Europeanisation scholarship beyond membership-based hierarchy and complement accounts of the Brussels effect by restoring state agency to the explanation of post-exit alignment. Re-Europeanisation, in this framework, is not a legal condition but an empirical outcome of embeddedness within an EU-centred regulatory ecosystem. Where embeddedness is dense, divergence becomes politically costly and administratively fragile.

The broader implication concerns sovereignty in advanced regulatory states. Withdrawal may restore juridical autonomy, but it does not dissolve institutional entanglement or economic interdependence. In such contexts, autonomy is exercised not through

separation but through strategic adaptation. The United Kingdom's post-Brexit experience suggests that regulatory power in the 21st century operates less through rupture than through negotiated compatibility. Brexit altered the modality of EU influence; it did not extinguish the structural conditions through which it operates.

Data Availability Statement

Data sharing is not applicable to this article as no datasets were generated or analysed during the current study.

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