ISSN: 2753-7919
British Journal of Healthcare and Medical Research; Vol. 13 No. 06 (2026) (104-119)
https://doi.org/10.14738/bjhr.1306.12742

Financial Shocks and the Allocation of Decision Rights: A Property-Rights Framework for Healthcare Investment

Markus Steinecker, Madhat Alrayes, Alfred Renger, & Monika Czirfuszová

University, Bratislava, Slovakia. Alfred Renger — Cardiologist, Germany

Abstract: We develop a property-rights framework for healthcare investment under financial shocks. Financing-cost shocks reduce perceived project value in proportion to the costs internalized by the effective decision maker (Proposition 3). Observed investment changes depend on projects' proximity to approval thresholds (Proposition 5). Separated rights can introduce approval frictions; credible financing support combined with capital ceilings can shift adjustment toward administrative rationing. Five European health systems illustrate institutional configurations without providing a causal test. The contribution is a set of conditional, empirically distinguishable predictions about governance-mediated investment responses.

Keywords: Property rights, Decision rights, Financial shocks, Healthcare investment, Organizational governance

INTRODUCTION

Healthcare organizations operate at the intersection of economic constraints, institutional governance, and public responsibilities. Hospitals require continuous investment in buildings, medical technology, digital infrastructure, energy systems, and organizational capacity, while their financing and investment decisions are embedded in regulatory and institutional arrangements that differ substantially from those of conventional firms. Consequently, capital allocation in healthcare cannot be understood solely as a financial decision. It also reflects ownership structures, public mandates, reimbursement arrangements, access to capital, and the distribution of authority between governments, owners, governing boards, and healthcare management. (Rechel et al., 2009a, 2009b)

The institutional foundations of these relationships can be traced to the economic theory of the firm. Coase (1937) established the firm as an alternative institutional mechanism to market coordination, emphasizing the relevance of transaction costs for organizational boundaries. Later property rights theory shifted attention toward ownership and control under incomplete contracting. Grossman and Hart (1986) distinguished specific contractual rights from residual rights of control and conceptualized ownership as the allocation of residual rights over assets. Hart and Moore (1990) further developed this approach by linking asset ownership and control to organizational boundaries and incentives. Together, these contributions provide a theoretical basis for examining why control over economically relevant assets and decisions matters when contracts cannot specify every future contingency.

For healthcare organizations, however, formal ownership alone may provide an incomplete account of governance. Authority over borrowing, capital investment, procurement, infrastructure, workforce, and service configuration may be distributed

among several actors rather than concentrated in a single owner. Governments, regional authorities, owners, supervisory bodies, boards, lenders, and hospital managers may possess different elements of formal and effective control. This distinction is consistent with Aghion and Tirole's (1997) differentiation between **formal authority**, defined as the right to make a decision, and **real authority**, referring to effective control over that decision. A decision-rights perspective therefore complements traditional property rights theory by directing attention from the question of who formally owns organizational assets toward the question of who is actually authorized and able to make particular strategic and financial decisions.

This distinction becomes especially important when healthcare organizations face changes in their external financial environment. Changes in policy rates, market interest rates, credit conditions, and risk premia may alter borrowing costs and the availability of external capital. Yet financial conditions cannot be expected to translate mechanically into organizational decisions. Whether higher financing costs lead to postponed investment, greater reliance on internal resources, restructuring, or no immediate organizational response depends on the financing architecture within which the provider operates and on the distribution of relevant decision rights. The same external financial change may therefore produce different organizational responses across ownership forms and health systems. (Durante et al., 2020)

European healthcare systems provide particularly useful institutional variation for examining this proposition. Germany, Switzerland, France, England, and Slovakia combine public health objectives with markedly different configurations of ownership, financing responsibility, decentralization, and organizational autonomy. In Germany, for example, hospital financing has traditionally followed a dual structure in which the Länder are responsible for investment financing while health insurers finance operating costs. This arrangement already illustrates why market interest rates alone cannot explain hospital investment: responsibility for investment and authority over major infrastructure decisions are institutionally distributed rather than determined solely at hospital level. (Blümel et al., 2020; De Pietro et al., 2015) Previous comparative work on community healthcare centres in Europe likewise demonstrates that organizational and management structures vary across institutional settings (Renger and Czirfusz, 2016).

France provides a different institutional configuration. Its health system combines a social health insurance tradition with strong state involvement in expenditure management and health-system governance. The increasing role of national government in managing health expenditure demonstrates how organizational financial conditions can be embedded within broader public financing and regulatory structures rather than being determined primarily through decentralized capital-market mechanisms. (Or et al., 2023)

England offers another analytically useful case because capital allocation and organizational autonomy are explicitly connected within National Health Service governance. Recent NHS capital guidance combines multi-year capital allocations with greater delegated authority and expanded capital freedoms for certain providers, while retaining approval requirements for major investments. Such arrangements illustrate the relevance of decision rights: the availability of financial resources and the authority to deploy those resources constitute related but analytically distinct dimensions of healthcare governance. (NHS England, 2026)

Slovakia provides a contrasting Central European case in which the Ministry of Health remains a major system steward and public financing plays a dominant role, while financial sustainability continues to be an important policy challenge. The European Observatory's 2025 health-system review identifies the Ministry, health insurers, and regional authorities as important governance actors and describes continuing reforms aimed at improving the sustainability and allocation of healthcare resources. The financial position of public hospitals is particularly relevant to the present analysis because persistent payment delays and accumulated liabilities demonstrate that formal public ownership does not eliminate organizational financial constraints. (Smatana et al., 2025) Recent work in the International Journal of Health Governance likewise treats financing arrangements as governance mechanisms because they redistribute accountability, incentives and organizational discretion (Verulava and Jorbenadze, 2026).

These institutional differences suggest that the relationship between financial conditions and healthcare investment should be conceptualized as a **governance-mediated transmission process** rather than as a direct financial effect. A change in interest rates or credit conditions first affects the broader financing environment. Its organizational relevance then depends on the provider's financing arrangements and exposure to external capital. Property rights and decision rights subsequently determine who controls relevant resources, who bears financial consequences, and who possesses the authority to approve, postpone, modify, or reject investment decisions.

The distinction has direct relevance for public health. Healthcare capital allocation can influence physical infrastructure, medical technology, service capacity, and organizational resilience. Financial constraints that affect investment may therefore have implications extending beyond organizational balance sheets. Where investment and capacity decisions influence the availability, accessibility, continuity, or resilience of healthcare services, financial governance becomes relevant to the ability of health systems to meet population health needs. Importantly, this argument does not imply a simple causal relationship between interest rates and public health outcomes. Rather, financial conditions represent an external constraint whose potential effects are mediated through institution-specific financing and governance arrangements. (Rechel et al., 2009a, 2009b)

Accordingly, this focused comparative institutional review addresses the following research question: **How do financial conditions interact with property rights, ownership structures, and decision rights to shape investment and governance responses in healthcare organizations, and what are the potential implications for public health capacity?**

The review develops three related arguments. First, financial conditions should be incorporated into property rights approaches to healthcare governance because changes in the cost and availability of capital alter the constraints within which control rights are exercised. Second, the allocation of decision rights provides a conceptual link between formal ownership and actual organizational responses to financial pressure. Third, the consequences of financial governance in healthcare potentially extend beyond organizational financial performance because investment decisions can influence infrastructure, service capacity, accessibility, and system resilience.

The incremental theoretical contribution is not the established distinction between legal ownership and effective authority, nor the observation that higher financing costs

reduce project value. It lies in the joint, conditional prediction of how marginal financing-cost exposure, effective investment authority and the distribution of projects around approval thresholds shape observed investment responses. Proposition 3 identifies the valuation channel; Proposition 5 shows why identical valuation changes can produce different approval outcomes depending on the initial distance to the threshold. Proposition 4 specifies an additional, procedurally conditional coordination channel, rather than deriving delays from the valuation equation. Proposition 6 distinguishes financing-price insulation from capital-allocation constraints: credible support may weaken the former without relaxing a binding investment ceiling. The resulting predictions distinguish changes in project valuation, approval incidence, approval duration and administrative rationing, and cannot be read directly from legal ownership categories alone. The proposed conceptual sequence is therefore:

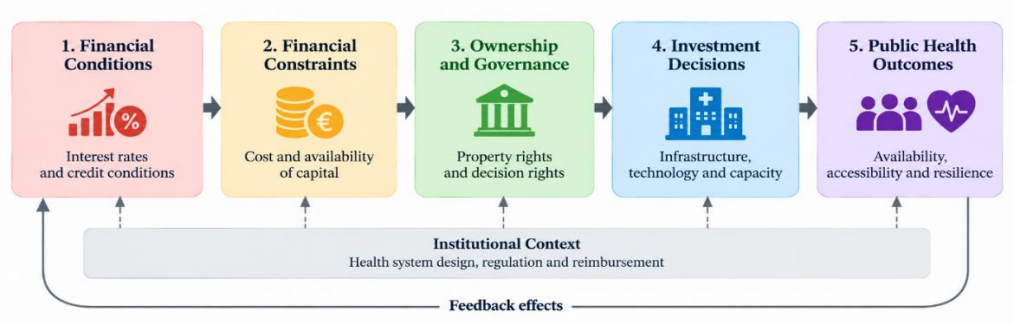


Figure 1: Governance-Mediated Transmission of Financial Conditions to Public Health Outcomes

Source: Authors' own conceptual framework, drawing on Coase (1937), Grossman and Hart (1986), Hart and Moore (1990), Aghion and Tirole (1997), and the literature on healthcare financing and governance

Financial conditions → organizational financing constraints → property and decision rights → governance responses → investment and capacity decisions → potential public health consequences.

Germany, Switzerland, France, England, and Slovakia are used as contrasting institutional cases through which this transmission mechanism can be examined. The objective is not to rank the five health systems or to identify a superior ownership model, but to explain why similar financial pressures may produce different organizational responses under different institutional arrangements.

Section 2 reviews property rights, ownership and decision authority in healthcare. Section 3 develops the conditional financing-shock mechanism and structured institutional illustrations. Section 4 identifies empirical tests and limitations. Section 5 concludes.

PROPERTY RIGHTS, OWNERSHIP, AND DECISION RIGHTS IN HEALTHCARE

Property Rights and Residual Control

Property rights theory provides a useful starting point for analysing governance in healthcare organizations because it shifts attention from formal organizational categories toward the allocation of control over economically relevant resources. In the incomplete-contracts

approach developed by Grossman and Hart (1986), contracts cannot specify rights and obligations for every possible future contingency. Contractual rights can therefore be distinguished between specific rights that are explicitly allocated ex ante and residual rights that determine control in circumstances not covered by the contract. Ownership becomes economically important because it assigns these residual rights of control. Earlier institutional analysis of German medical care centres applied property-rights theory to differences in organizational form and control (Renger and Czirfusz, 2019).

Hart and Moore (1990) further developed this property-rights approach by linking ownership of non-human assets to organizational boundaries and incentives. The central implication for the present analysis is that ownership matters not merely because an actor holds legal title to an asset, but because ownership affects control over decisions that cannot be completely specified in advance. Property rights therefore influence incentives, bargaining positions, and the capacity of organizational actors to respond to changing circumstances.

This perspective is particularly relevant to healthcare, where organizations operate under conditions of substantial contractual and regulatory complexity. Hospitals interact with governments, insurers, lenders, professional groups, suppliers, patients, and other stakeholders. Many important decisions concerning investment, infrastructure, technology, capacity, and service configuration cannot be fully anticipated in contracts or regulation. Consequently, the distribution of residual control may become important when healthcare organizations must respond to unexpected financial, technological, demographic, or policy changes. (Cordery & Howell, 2017) Related work has also used transaction-cost and principal-agent perspectives to analyse healthcare organizations from a public-health perspective (Renger and Czirfusz, 2026).

Ownership Does Not Necessarily Equal Control

A central proposition of this review is that **ownership, control, and decision rights should not be treated as synonymous concepts**. This distinction is especially important in healthcare because legal ownership often coexists with extensive external regulation, public financing, professional autonomy, and multiple layers of governance.

Cordery and Howell (2017), applying contractual and property-rights reasoning to healthcare organizations, explicitly distinguish ownership, control, agency, and residual claims. Their analysis demonstrates that organizational forms such as nonprofit and cooperative healthcare providers differ not only according to formal ownership but also according to who exercises control and who possesses claims over residual organizational resources. These distinctions have consequences for governance and for the relationship between healthcare providers, funders, and regulators.

The issue is particularly visible when public, nonprofit, and for-profit healthcare organizations are compared. In a conventional for-profit corporation, shareholders generally possess identifiable residual financial claims, although operational decision-making is delegated to boards and management. In nonprofit organizations, by contrast, there is no equivalent shareholder with a conventional claim to distributable residual profits. Public healthcare organizations introduce another configuration in which ownership or ultimate control may rest with the state, regional authorities, municipalities, or other public entities,

while operational authority is delegated to organizational management. (Cordery & Howell, 2017)

These categories should nevertheless be interpreted cautiously. A public hospital may possess considerable managerial autonomy, while another public hospital may require external authorization for major investments. A nonprofit provider may independently negotiate financing but remain constrained by regulatory or contractual obligations. A private provider may possess formal ownership rights while facing substantial restrictions concerning reimbursement, service provision, capacity, or investment. Formal ownership therefore provides only one dimension of healthcare governance.

From Property Rights to Decision Rights

The concept of **decision rights** provides a bridge between ownership structures and observable organizational behaviour. Aghion and Tirole (1997) distinguish between formal authority—the formally allocated right to make a decision—and real authority, understood as effective control over that decision. Their framework demonstrates that formal organizational structures do not necessarily reveal where effective decision-making power resides.

This distinction has direct relevance for healthcare organizations. Decisions concerning borrowing, capital expenditure, procurement, staffing, technology adoption, service expansion, or restructuring may require approval by different organizational or governmental actors. A hospital management team may therefore possess operational expertise without possessing the formal authority to approve a major capital investment. Conversely, a government or supervisory authority may retain formal approval rights while relying heavily on information and recommendations generated by hospital management.

Decision rights can consequently be understood as a more specific operational expression of organizational control. For the purposes of this review, four categories are particularly relevant: These categories are summarized in Figure 2.

- **Financial decision rights** concern borrowing, debt management, liquidity, reserves, and access to external finance.
- **Investment decision rights** concern buildings, medical equipment, digital infrastructure, and other capital expenditure.
- **Operational decision rights** concern procurement, staffing, service organization, and resource allocation.
- **Strategic decision rights** concern capacity expansion or reduction, major restructuring, cooperation, consolidation, and long-term organizational positioning.

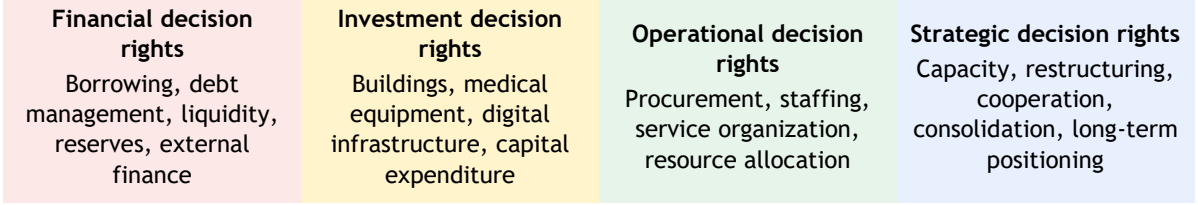


Figure 2: Categories of Decision Rights in Healthcare Organizations

Source: Authors' own conceptual framework, based on the categories developed in Section 2.3.

The allocation of these rights determines how rapidly and through which governance mechanisms an organization can respond to changes in its environment.

Property Rights and Financial Constraints

This distinction becomes particularly important when financial conditions change. An increase in interest rates, credit spreads, or financing costs does not itself constitute an organizational decision. It changes the financial environment within which decision makers operate. (Durante et al., 2020) Prior work comparing financing structures of outpatient medical care centres and hospitals in Germany illustrates the institutional heterogeneity of healthcare financing arrangements (Renger et al., 2024).

The subsequent organizational response depends partly on the distribution of rights and responsibilities. If hospital management possesses substantial authority over borrowing and investment, changing financing costs may enter directly into capital-allocation decisions. If investment requires approval or financing from a regional or national government, the transmission mechanism is different. Similarly, where capital expenditure is predominantly publicly financed, the direct exposure of an individual healthcare provider to market interest rates may be weaker than where providers finance investments through their own borrowing. (Durante et al., 2020; Blümel et al., 2020) Figure 3 summarizes these three dimensions.

Property rights and decision rights therefore provide a mechanism through which external financial conditions are translated into organizational responses. The relevant analytical question is not simply whether financing becomes more expensive, but **who has the authority and responsibility to respond when it does**.

This leads to a distinction between three elements:

- **Financial exposure** describes the extent to which an organization is affected by changing capital costs and credit conditions.
- **Decision authority** describes who possesses the right to respond through borrowing, investment, restructuring, or resource allocation.
- **Residual consequences** describe which actors ultimately bear the financial or organizational consequences of those decisions.

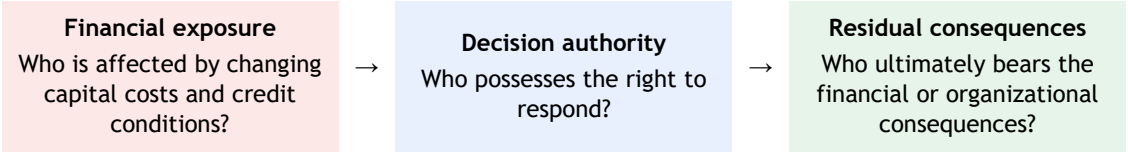


Figure 3: Three Dimensions of Governance-Mediated Financial Response

Source: Authors' own conceptual framework, based on the distinctions developed in Section 2.4.

These three elements need not be located within the same actor. A healthcare organization may experience financial pressure while an external public authority retains investment approval rights. A government may finance infrastructure while operational

consequences fall on hospital management. A lender may influence investment indirectly through financing conditions without possessing formal governance authority. Healthcare governance is therefore better understood as a configuration of interdependent rights and responsibilities than as a simple function of ownership.

An Institutional Perspective on Healthcare Governance

Property rights in healthcare are embedded within broader institutional arrangements. Regulation, reimbursement systems, public-service obligations, decentralization, and health-system financing determine both the scope and the economic significance of organizational decision rights. The same formal ownership category may therefore generate different governance arrangements across countries. (Blümel et al., 2020; De Pietro et al., 2015; Or et al., 2023; Smatana et al., 2025) This institutional perspective is consistent with earlier typological work on transaction costs across forms of medical care in Germany (Renger and Czirfusz, 2023).

This observation is central to the comparative approach adopted in this review. Germany, Switzerland, France, England, and Slovakia differ not merely in the proportion of public and private providers, but in how financing responsibilities and decision authority are distributed between healthcare organizations, governments, regional authorities, insurers, and other institutional actors. The five-country comparison therefore focuses less on ownership labels themselves than on the institutional configuration surrounding ownership. (Blümel et al., 2020; De Pietro et al., 2015; Or et al., 2023; NHS England, 2026; Smatana et al., 2025)

From this perspective, property rights theory provides the underlying logic, while decision rights provide the organizational transmission mechanism. The relationship can be summarized as:

Ownership structure → residual control rights → allocation of decision rights → organizational response.

The institutional environment surrounds this sequence by defining which rights can be exercised, which decisions require external authorization, how investment is financed, and which public obligations healthcare organizations must fulfil.

This approach also helps explain why financial conditions may produce heterogeneous responses across healthcare systems. Two hospitals facing similar changes in market interest rates may react differently because one possesses independent borrowing and investment authority while the other relies predominantly on public capital allocation. Even organizations with similar legal ownership may differ substantially in their real authority to respond.

Implications for Public Health

The distinction between ownership and decision rights has implications beyond organizational theory. Healthcare organizations control resources that contribute to the provision of services to populations. Decisions concerning infrastructure, technology, capacity, and organizational restructuring may therefore affect the availability and accessibility of healthcare. (Rechel et al., 2009a, 2009b)

The public-health relevance does not arise directly from ownership form or from financial conditions themselves. Instead, it emerges through the decisions made within particular governance structures. Property and decision rights determine who can alter healthcare capacity, while financial conditions influence the constraints under which such decisions are made.

Accordingly, this review treats governance as a mediating institutional layer between financial conditions and potential public-health consequences. This interpretation is consistent with research on the distribution of authority and accountability in health systems (Lipunga, Tchereni, & Bakuwa, 2019; Verulava and Jorbenadze, 2026). Two propositions follow.

- **Proposition 1:** *The organizational effects of changing financial conditions on healthcare investment are contingent on the allocation of property rights, residual control, and decision rights within the relevant health-system context.*

A second proposition follows from the distinction between formal and effective authority:

- **Proposition 2:** *Formal ownership alone is insufficient to predict organizational responses to financial constraints; the effective allocation of investment and financing decision rights is a more proximate determinant of organizational response.*

A CONDITIONAL MECHANISM: EXPOSURE, AUTHORITY, AND RESIDUAL CONSEQUENCES

The framework distinguishes three actors or sets of actors: the party exposed to a financing shock (E), the party with effective authority to approve or adjust an investment (A), and the party bearing the residual financial or service consequences (R). These positions may coincide, but need not. The theoretical question is whether their alignment changes the transmission of an external financing shock into investment decisions. This is a conceptual mechanism, not an estimated causal relationship.

Let an investment project have expected service and organizational benefits B, non-financing costs C, and financing costs F(r), where r represents the relevant financing conditions. An actor with authority chooses whether to proceed subject to applicable budget and approval constraints. A rise in r raises F(r) for a directly exposed borrower, all else equal. However, the actor exercising authority may not internalize that increase, or may not bear the consequences of postponement. The investment response therefore depends not only on the shock but also on the mapping from exposure to authority and residual consequences. This stylized decision rule does not presume that benefits can be reduced to a single monetary measure in publicly mandated care.

Consider an authorized decision maker A evaluating an investment project. Let r denote financing conditions, $e_A \in [0,1]$ the fraction of marginal financing costs internalized by A, and $q_A \in [0,1]$ the weight that A assigns to the project's expected service and organizational benefits. In a stylized representation, perceived project value is $V_A(r) = q_A B - C_A - e_A F(r) - K_A$, where B is the project's expected service and organizational benefit, C_A represents other perceived costs, F(r) is the financing-cost schedule, and K_A

denotes approval, bargaining and coordination costs. The project is approved when $V_A(r)$ exceeds the applicable decision threshold, subject to binding legal and budgetary constraints. Holding the other terms fixed, $\partial V_A/\partial r = -e_A F'(r)$. This relation describes the decision maker's direct cost exposure; it is not a causal estimate. When $e_A = 0$, the direct financing-cost channel is absent from A's objective, but transfers, approval rules or budget constraints can still transmit a shock. The parameter q_A matters for the baseline investment threshold and the valuation of service consequences; its interaction with e_A is an empirical question, not an assumed welfare ranking.

Interpretation of residual consequences. The coefficient q_A is a reduced-form valuation weight on B, not a measure of the decision maker's legal liability for deficits, its share of distributable profits, or the social welfare value of care. Financial residual liability is represented only insofar as it changes e_A or other perceived costs and constraints; non-financial service consequences can enter B and the actor-specific weight q_A. The identity of the residual bearer R is therefore a governance characteristic to be measured independently of both coefficients. A richer model could separate private organizational returns from public service benefits, but the present specification deliberately retains one benefit term to isolate the financing-cost channel.

The model separates two issues that are often conflated: the sensitivity of the authorized actor's perceived project value to financing costs (e_A) and the weight assigned to residual service consequences (q_A). Even when a higher financing cost reduces perceived project value, an investment may proceed if its expected benefit remains above the approval threshold. Conversely, an actor bearing financing costs but not service losses may postpone a socially valuable project. Approval vetoes, earmarked public transfers and reimbursement rules can dominate the stylized calculation. The framework therefore predicts conditional differences in decision thresholds and adjustment pathways, not uniformly lower investment or superior outcomes under any ownership form.

Proposition 3 (cost transmission). For projects with otherwise comparable perceived benefits, costs and approval constraints, an increase in financing costs reduces the authorized actor's perceived project value more strongly when that actor internalizes a larger share of marginal financing costs (higher e_A). Whether observed investment changes depends on the initial distance from the approval threshold and on institutional constraints.

Proposition 4 (procedural coordination hypothesis). Holding financing exposure, project characteristics and other approval conditions constant, separation of investment authority from the actor bearing marginal financing costs can lengthen approval times if implementation requires sequential consent or negotiated cost transfers that introduce non-zero waiting or bargaining stages. No delay is predicted solely from the separation of rights: delegated authority, precommitted transfers, automatic approval or parallel processing may eliminate or offset the procedural friction.

Scope condition for Proposition 4. The valuation function includes coordination costs K_A but contains no approval-time equation. Proposition 4 is therefore a conditional procedural hypothesis, not a mathematical implication of the valuation function. Its test requires independent measurement of approval duration, the number and sequencing of consent stages, and coordination costs. Separation of rights may increase K_A without increasing calendar time.

Empirical implication (measurement). Tests of financial-shock transmission should measure exposure, effective decision authority, and residual liability separately rather than treating legal ownership as a sufficient proxy for all three. Potential observable outcomes include approval delays, capital expenditure, project cancellations, and changes in service capacity; effects on patient access require separate empirical identification.

The theoretical propositions and measurement implication sharpen the distinction between the present framework and the established literature. Grossman and Hart (1986) and Hart and Moore (1990) explain the importance of residual control under incomplete contracting; Aghion and Tirole (1997) distinguish formal and real authority. The proposed extension is to specify how the separation or alignment of exposure, authority, and residual consequences may condition the transmission of financing shocks into healthcare investment. Whether this mechanism generalizes beyond healthcare remains an open research question.

The propositions form a sequential set of conditional predictions rather than independent claims of universal investment decline. Proposition 3 identifies the intensive change in perceived project value caused by marginal financing-cost exposure. Proposition 5 maps that change into approval or postponement for projects close to the decision threshold. Proposition 6 then identifies a distinct institutional countermechanism: credible financing support can attenuate the price channel while binding capital ceilings or approval requirements shift adjustment to administrative rationing. Observing the latter pattern would therefore not, by itself, refute the financing-cost mechanism.

Comparative Statics and Institutional Countermechanisms

The baseline mechanism yields a sharper prediction if project heterogeneity is made explicit. Let project i have a net decision margin $M_i(r) = q_A B_i - C_{Ai} - e_A F_i(r) - K_{Ai} - T_A$, where T_A is the relevant approval threshold. Approval occurs if $M_i(r) \geq 0$. For projects not already constrained by a binding prohibition, a financing shock changes approval only for those whose initial margin lies sufficiently close to zero. Thus the framework predicts an extensive-margin response concentrated among marginal projects, rather than an equal proportional decline in all capital expenditure.

Proposition 5 (threshold concentration). Conditional on comparable project benefits, exposure and governance constraints, an increase in marginal financing costs is more likely to delay or prevent approval of projects near the pre-shock decision threshold than of projects with substantial positive decision margins. The proposition concerns approval probability and timing, not the welfare value of the projects selected.

The financing-cost bearer need not be the authorized decision maker. Suppose an external authority G absorbs a share s of the marginal financing cost through a transfer or guarantee, while A bears the remaining share. Under a credible and contemporaneous pass-through, the direct financing term in A's objective becomes $-e_A(1 - s)F(r)$. Its marginal sensitivity is then $-e_A(1 - s)F'(r)$. This result depends on the guarantee being credible, non-rationed and known at the approval date. If G instead caps aggregate capital spending or imposes additional authorization, the guarantee can reduce price exposure while increasing quantity rationing or delays.

Capacity constraint and allocation rule. Let $x_i \in \{0,1\}$ indicate project approval and let $I_i > 0$ denote the capital requirement of project i. When an authority imposes a binding capital envelope H, feasible approvals satisfy $\Sigma_i I_i x_i \leq H$. Even if a subsidy increases the number of projects with $M_i(r) \geq 0$, realized investment cannot exceed the envelope. Which eligible projects proceed then depends on the authority's prioritization and approval rule; the model alone does not determine queue length or waiting time. This distinction separates the formal financing-price effect from the conditional institutional prediction of administrative rationing.

Proposition 6 (price–quantity substitution). A credible marginal financing subsidy attenuates the authorized actor's direct price response to a financing shock, but need not increase realized investment when the subsidizing authority imposes binding capital ceilings or approval requirements. Under such conditions, adjustment may shift from borrowing costs to project queues, approvals and intergovernmental bargaining.

These predictions discriminate among alternative mechanisms. A pure borrowing-cost account predicts heterogeneity mainly by debt exposure; a formal-ownership account predicts heterogeneity mainly by legal provider category. The present framework instead predicts additional heterogeneity, conditional on those factors, from documented effective approval rights, the share of costs internalized by the decision maker, and the rules governing transfers and vetoes. A null interaction with those rights, in an adequately powered design with valid measures, would challenge the proposed incremental explanatory value.

Identification requires distinguishing shocks to the market price of capital from endogenous changes in expected hospital revenue, project benefits or government appropriations. Pre-shock refinancing maturities can proxy exposure only if their timing is not itself chosen in anticipation of the shock. Formal legal authority should be validated against observed approvals and vetoes. These conditions are requirements for future testing, not evidence supplied by the five-country illustrations.

Scope Conditions

The mechanism is most informative for discretionary capital projects whose financing costs change and whose approval can be delayed or modified. It is less directly applicable where capital is fully grant-funded, investments are legally mandated, or financing costs are fixed for the relevant horizon. A financing shock may also affect providers indirectly through public budgets, reimbursement decisions or lenders; those channels require separate identification. The model holds expected project benefits and other perceived costs fixed when deriving its marginal comparative static. It therefore does not predict total investment when demand, inflation, input prices and financing conditions change together.

Structured Comparison of Institutional Configurations

Table 1 organizes the five settings along the same dimensions. Entries are illustrative institutional features reported in the sources cited in the introduction, not exhaustive national classifications. In particular, financing and approval rights can vary by provider type, ownership form, subnational jurisdiction and project size. The table identifies where

a future empirical study would need provider-level verification; it does not attribute observed investment outcomes to interest-rate changes.

The five health systems discussed above provide contrasting institutional illustrations rather than matched observations. Germany illustrates split public investment and operating-finance responsibilities; England illustrates delegated capital authority under centralized approval constraints; France illustrates state-mediated financial governance; Switzerland illustrates cantonal and organizational variation; and Slovakia illustrates public stewardship alongside financial arrears. These descriptions identify candidate differences in financing and authority, but do not establish that the same financing shock caused different investment outcomes across these systems. For a comparative empirical design, researchers should code, for each provider and period, (i) exposure to floating-rate debt or refinancing, (ii) the authority to borrow and authorize capital expenditure, (iii) the party liable for deficits and residual costs, and (iv) public transfers and investment-approval thresholds. The hypotheses can then be assessed using plausibly exogenous financial changes interacted with these governance characteristics. This would distinguish a property-rights mechanism from differences in demand, reimbursement, or baseline infrastructure needs.

The five-country comparison is deliberately illustrative and is not based on a harmonized provider-level dataset. In particular, the cited health-system reports establish broad financing and governance arrangements, but do not establish the exposure, authority or residual liability of individual hospitals at a common point in time. The comparative claims should therefore be read as institutional hypotheses to be verified, not as measured country-level effects.

Table 1: Illustrative governance dimensions for comparative research (not measured country outcomes).

Setting	Financing / exposure to verify	Investment authority to verify	Institutional implication
Germany	Public capital allocations versus provider borrowing; dual financing	Länder, owners and provider management, by project	Separate public funding responsibility from provider debt exposure
Switzerland	Cantonal financing and provider-specific borrowing	Cantonal authorities, hospital boards and managers	Disaggregate canton and hospital legal form
France	Publicly mediated capital funding and provider financing	National/regional authorities and provider governance	Identify approvals and budget constraints before assigning exposure
England	NHS capital envelopes and provider-specific capital permissions	Delegated provider authority subject to approval thresholds	Distinguish delegated authority from ultimate capital control
Slovakia	Public funding, liabilities and provider-level liquidity	Ministry, insurers, regional bodies and provider management	Measure arrears and liquidity constraints separately from market rates

Source: Authors' own compilation based on Blümel et al. (2020), De Pietro et al. (2015), Or et al. (2023), NHS England (2026), and Smatana et al. (2025). The entries are illustrative analytical categories, not harmonized country-level measurements.

A discriminating empirical test would compare providers with similar pre-shock investment plans but different contractual exposure to refinancing and different effective approval rights. Relevant outcomes are project approval times, committed capital expenditure, cancellations and changes in capacity. Interactions between a common rate shock and pre-existing refinancing exposure could help identify the financing channel; interactions with documented approval thresholds could test the authority channel. Such designs would still need to address non-random governance structures, anticipatory investment and contemporaneous reimbursement changes. Patient outcomes must be analysed separately rather than inferred from capital expenditure alone.

DISCUSSION AND RESEARCH AGENDA

The central contribution of the framework is to shift attention from ownership categories alone to the institutional transmission of financial pressure. This is consistent with governance research emphasizing that organizational responses depend on how authority, accountability and resources are distributed across actors and levels (Lipunga, Tchereni, & Bakuwa, 2019; Baalla and Jellouli, 2026). Recent work on performance-based financing similarly illustrates that financing arrangements can operate as governance reforms by changing accountability and organizational incentives (Verulava and Jorbenadze, 2026). Future empirical research can therefore examine three questions jointly: which actor is exposed to changing capital costs, which actor possesses financing and investment decision rights, and which actor bears the residual financial and service consequences. Comparative studies can then test whether otherwise similar financial shocks generate different investment responses where these rights and responsibilities are allocated differently. The framework is intentionally parsimonious: it does not assume that public, nonprofit or private ownership produces a predetermined response, and it does not infer public-health outcomes directly from financing conditions. Rather, it specifies the governance mechanisms that should be observed before such relationships are assessed empirically.

The central falsification risk is that financial exposure and decision authority may be correlated with unobserved managerial capacity, public-service obligations or expected demand. If, after accounting for these factors, investment responses do not differ by the hypothesized allocation of marginal costs and authority, the proposed mechanism would receive no empirical support. This makes the framework a testable research program rather than a claim that institutional differences necessarily cause divergent outcomes.

CONCLUSION

This paper develops a conditional institutional-economic account of healthcare investment under financing shocks. The key contribution is the interaction between the authorized decision maker’s marginal financing-cost exposure and the distribution of projects around approval thresholds (Propositions 3 and 5). A larger decline in perceived project value need not produce a larger decline in observed investment when projects remain far from their approval thresholds. The separation of financing exposure from effective authority may add procedural delays, but only under explicit consent or bargaining arrangements (Proposition 4). Credible financing support may attenuate the price channel while a binding capital ceiling continues to constrain investment through administrative selection (Proposition 6).

Propositions 1 and 2 state the institutional premises; they are not presented as novel ownership theory. The five country illustrations identify plausible configurations rather than test causal effects. Empirical evaluation requires project-level data on exposure, authority, threshold proximity, approval duration and capital constraints; consequences for healthcare capacity and public health remain separate questions.

Declaration on generative AI: Generative AI was used to assist with language editing, structural editing, and the exposition of the conceptual model. The authors are responsible for the accuracy of all theoretical claims, references, figures, and the final manuscript.

REFERENCES

Aghion, P., & Tirole, J. (1997). Formal and real authority in organizations. Journal of Political Economy, 105(1), 1–29. https://doi.org/10.1086/262063

Baalla, A., & Jellouli, T. (2026). Territorial health groups in Morocco: towards decentralized and equitable health system governance. International Journal of Health Governance, 31(2), 237–252. https://doi.org/10.1108/IJHG-08-2025-0130

Blümel, M., Spranger, A., Achstetter, K., Maresso, A., & Busse, R. (2020). Germany: Health system review. Health Systems in Transition, 22(6), 1–272. European Observatory on Health Systems and Policies.

Coase, R. H. (1937). The nature of the firm. Economica, 4(16), 386–405. https://doi.org/10.1111/j.1468-0335.1937.tb00002.x

Cordery, C., & Howell, B. (2017). Ownership, control, agency and residual claims in healthcare: Insights on cooperatives and non-profit organizations. Annals of Public and Cooperative Economics, 88(3), 403–424. https://doi.org/10.1111/apce.12156

De Pietro, C., Camenzind, P., Sturny, I., Crivelli, L., Edwards-Garavoglia, S., Spranger, A., Wittenbecher, F., & Quentin, W. (2015). Switzerland: Health system review. Health Systems in Transition, 17(4), 1–288. European Observatory on Health Systems and Policies.

Durante, E., Ferrando, A., & Vermeulen, P. (2020). How does monetary policy affect investment in the euro area? ECB Research Bulletin, No. 77. European Central Bank.

Grossman, S. J., & Hart, O. D. (1986). The costs and benefits of ownership: A theory of vertical and lateral integration. Journal of Political Economy, 94(4), 691–719. https://doi.org/10.1086/261404

Hart, O., & Moore, J. (1990). Property rights and the nature of the firm. Journal of Political Economy, 98(6), 1119–1158. https://doi.org/10.1086/261729

Lipunga, A. M., Tchereni, B. M. H., & Bakuwa, R. C. (2019). Emerging structural models for governance of public hospitals. International Journal of Health Governance, 24(2), 98–116. https://doi.org/10.1108/IJHG-03-2019-0018

NHS England. (2026). Capital guidance 2026/27 to 2029/30. NHS England.

Or, Z., Gandré, C., Seppänen, A.-V., Hernández-Quevedo, C., Webb, E., Michel, M., & Chevreul, K. (2023). France: Health system review. Health Systems in Transition, 25(3). European Observatory on Health Systems and Policies.

Rechel, B., Erskine, J., Dowdeswell, B., Wright, S., & McKee, M. (Eds.). (2009a). Capital investment for health: Case studies from Europe. European Observatory on Health Systems and Policies. ISBN 978-92-890-4178-2.

Rechel, B., Wright, S., Edwards, N., Dowdeswell, B., & McKee, M. (Eds.). (2009b). Investing in hospitals of the future. European Observatory on Health Systems and Policies. ISBN 978-92-890-4304-5.

Renger, F., & Czirfusz, A. (2016). Structural comparison of management aspects of community healthcare centres in Europe with special focus on Germany. Academy of Strategic Management Journal, 15(1), 41–47.

Renger, F., & Czirfusz, A. (2019). Modellbildung bei den drei Typen von Medizinischen Versorgungszentren unter Gesichtspunkten der Property Rights-Theorie: Eine institutionstheoretische Betrachtung. Hamburg: Verlag Dr. Kovač. ISBN 978-3-339-11262-0. eISBN 978-3-339-11263-7.

Renger, F., & Czirfusz, A. (2023). Types of transaction costs in forms of medical care in Germany: Development of a typology. Journal of Economics & Management Research, 4(3), 1–5. https://doi.org/10.47363/JESMR/2023(4)179

Renger, F., & Czirfusz, A. (2026). Die Transaktionskostentheorie und die Prinzipal-Agenten-Theorie aus der Public Health-Perspektive mit Fokus auf den Medizinischen Versorgungszentren in Deutschland. Hamburg: Verlag Dr. Kovač. ISBN 978-3-339-15008-0. eISBN 978-3-339-15009-7.

Smatana, M., Löffler, Ľ., Pažitný, P., Kandilaki, D., & Shuftan, N. (Eds.). (2025). Slovakia: Health system review. Health Systems in Transition, 27(2). European Observatory on Health Systems and Policies.

Verulava, T., & Jorbenadze, R. (2026). Performance-based financing as a quality governance reform in primary health care: workforce perspectives. International Journal of Health Governance, advance online publication, 1–13. https://doi.org/10.1108/IJHG-03-2026-0059