

Systemically important enterprises: a fiscal policy perspective

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Abstract

The major crises of the past 20 years have increasingly forced governments into assuming ultimate liability and in some cases have required far-reaching policy measures. Government interventions to support individual entities, whether large enterprises, pieces of infrastructure or economic sectors, are based on the understanding that private market forces cannot deal with such crises alone and that the dynamics at play would result in unacceptable economic costs. In this context, terms such as 'too big to fail', 'systemic importance' and 'systemic criticality' are increasingly being used to call for government support, but without further clarification of their exact meaning. With a view to a cross-sectoral economic policy analysis for Switzerland, we first define and compare the concepts of systemic criticality and systemic importance. It is shown that the criticality of infrastructure and the systemic importance of enterprises are determinable using valid criteria that can guide economic policy decisions. In the case of systemically important enterprises, the three key economic criteria are size and market concentration, degree of interconnectedness and lack of substitutability. Second, we apply these criteria, by way of example, to large enterprises in the subsectors of highest criticality, revealing that, whereas the first two criteria are often met, this is rarely the case with lack of substitutability. Only a few enterprises can therefore be considered systemically important, and these are typically to be found in the financial sector. Furthermore, we present conceptual considerations regarding the range of policy measures available in the context of systemic criticality and systemic importance. In particular, we underline that, where far-reaching policy measures such as public liquidity backstops (PLBs) are provided, their design should include strict conditionalities in order to reduce moral hazard and limit the ultimate liability risks for taxpayers.

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Keywords: systemic criticality, systemic importance, moral hazard, liquidity, too big to fail, public liquidity backstop, contingent liabilities, fiscal risks

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1. Introduction¹

The crises of the past 20 years have increasingly forced governments into assuming ultimate liability and in some cases have required far-reaching policy measures, often developed and implemented at short notice. As well as financial markets, prominent examples have included aviation, energy supply, the health system and the management of damage caused by extreme natural events. At the same time, economies with highly integrated product and factor markets along global supply chains are becoming more susceptible to disruption, for example against the backdrop of trade and geopolitical turmoil.

In principle, government intervention can be economically justified as a means of correcting market failures, and depending on the type of market failure a wide range of such interventions are available. Government interventions to support individual entities in crisis, whether large enterprises, pieces of infrastructure or economic sectors, are then based on the understanding that private market forces are unable to cushion the repercussions and the downside dynamics unleashed by a service failure would jeopardise the stability of the economy as a whole, potentially resulting in unacceptable economic costs. In this context, great importance is attached to terms such as «too big to fail», «systemic importance» and «systemic criticality», especially when it comes to deciding whether and in what form government support or insurance is necessary.

Since the COVID-19 pandemic, systemic importance has increasingly been used politically to justify the demand for government support for entrepreneurial activity. The popularity of the term is in part linked to its vagueness.² This poses the risk that the government will increasingly face calls to provide support, which in turn could create incentives for excessively risky business decisions, rather than promoting responsible behaviour throughout the economic cycle. Possible consequences include higher economic costs, a growing discrepancy between «privatised profits» and «socialised losses», a loss of economic policy coherence and strain on public budgets.

Our article aims to provide a better basis for economic policy decisions on the question of when government emergency support for systemically important enterprises is appropriate, based on specific criteria and a cross-sectoral perspective. Our study relates to Switzerland, but the issue is one of general significance. Research on neighbouring German-speaking countries shows that there too are few cross-sectoral foundations concerning government interventions to support systemically important enterprises during crises. A look at the literature reveals a largely similar picture. While literature on systemically important banks exists in the context of the work of the Basel Committee on Banking Supervision, this is not the case for other policy areas.³ The article is conceptual in nature; an assessment of individual cases would require a more in-depth examination.

We begin by defining and comparing the concepts of systemic criticality and systemic importance. Firstly, criticality is explained in the light of work on the National Critical Infrastructure Protection (CIP) Strategy and the underlying criteria. Secondly, the concept of systemic importance is discussed with reference to its criteria in the context of the TBTF («too big to fail») debate. It is shown

1 The authors would like to thank Sabine D'Amelio-Favez, Arie Gerszt, Jonas Vetter, Sandra Daquet, Eric Scheidegger, Ronald Indergand, Nikolas Wallart, Mathias Spicher, Christoph König, Nick Wenger and Hans Peter Binder for valuable comments and feedback.

2 Hübscher (2020) argues that „systemic importance is first and foremost a political term“, coined during the financial crisis and used in a „hyperinflationary“ way since the COVID-19 pandemic. In the debate, he notes, the concept is always laden with individual interests.

3 There are also links to work on the broader topics of fiscal risks and state-dominated enterprises; see, for example, IMF (2016a&b), IMF (2020) and OECD (2024).

that the two terms are often used in very similar ways, focusing on the failure of essential services. However, while criticality is used as a measure of the social and economic importance of subsectors within a comprehensive approach to bolstering resilience, systemic importance focuses on large, highly interconnected enterprises, a failure of whose services could not be substituted within a reasonable time frame. Systemic importance is therefore more narrowly defined. Our analysis also shows that there are meaningful and viable criteria for the criticality of critical infrastructure and the systemic importance of enterprises, criteria that can be usefully applied in economic policy decision-making. When it comes to systemic importance, the three key economic criteria are size and market concentration, interconnectedness and lack of substitutability.

Next, a simple analysis of the subsectors of highest criticality from a CIP perspective, looking at the systemic importance of key enterprises, suggests that the criteria of size and market share as well as interconnectedness are often sufficiently met. Conversely, a lack of substitutability seems plausible only in rare cases. Accordingly, only a few large enterprises, primarily in the financial sector, can be classified as systemically important based on relevant criteria. The question of whether large electricity suppliers qualify as systemically important must generally be answered in the negative, though emergency government support in individual cases should be assessed in greater detail with regard to the specific causes of a crisis.

Building on this, we set out conceptual considerations regarding government measures in the context of systemic criticality and systemic importance. This account reveals a broad range of available measures depending on the depth, timing and design of the intervention. In particular, we underline that far-reaching policy measures (such as PLBs or financial rescue mechanisms) must be subject to extensive requirements, such as strict conditionalities, fees and stringent transparency requirements. This is to counter moral hazard incentives and protect government from excessive ultimate liability risks. We conclude by setting out the key messages with a view to economic and fiscal policy.

2. Critical infrastructure and systemically important enterprises: terms and criteria

2.1 Critical infrastructure

Concept and approach

The Federal Office for Civil Protection (FOCP) describes *critical infrastructure as processes, systems and facilities that are essential for the functioning of the economy and the basic needs of the population. It ensures the availability of key goods and services such as energy, communication and transport. The disruption, failure or destruction of such infrastructure could have serious consequences for the economy and society. Critical infrastructure is divided into sectors and subsectors (e.g. power supply, oil supply and natural gas supply in the energy sector). As a rule, all components and assets within the critical subsectors (e.g. operating enterprises, facilities, systems) form part of the critical infrastructure, although their respective importance (or criticality) varies.*^{4, 5}

This understanding of critical infrastructure is very similar to that prevailing in Germany, Austria and the European Union (see Box 1). Firstly, critical infrastructure serves to supply the country with essential goods and services. Secondly, the focus is on the economy and the population as stakeholder groups affected by the supply of key goods and services. Thirdly, critical infrastructure is viewed comprehensively and systemically, with supply chains and input factors such as labour included as a component of infrastructure.

Box 1: Other definitions of critical infrastructure

The German Federal Office of Civil Protection and Disaster Assistance (BBK) defines critical infrastructure («KRITIS») as *organisations and facilities of major importance to society whose failure or impairment would cause a sustained shortage of supplies, significant disruptions to public order, safety and security or other dramatic consequences. It is used to provide critical services, which are understood as services for the general public whose failure or impairment would lead to a significant shortage of supplies or threats to public order, safety and security.*⁶

In Austria, the 2014 Masterplan defines critical infrastructure as *infrastructure (systems, assets, processes, networks or parts thereof) that is essential for the maintenance of vital social functions and whose disruption or destruction would have a serious impact on the health, safety, security or economic and social well-being of large parts of the population or the effective functioning of government.*⁷

EU member states are subject to EU Directive 2022/2557 on the resilience of critical entities (CER), which replaced the previous Critical Infrastructure Directive on 1 January 2023. The CER Directive states: *Critical entities, as providers of essential services, play an indispensable role in the maintenance of vital societal functions or economic activities in the internal market in an increasingly interdependent Union economy.*⁸

4 Federal Council (2023) and Federal Office for Civil Protection (2018).

5 Where events and developments in the context of critical infrastructure or systemically important enterprises jeopardise the performance of the Confederation's tasks, they are also recorded and managed as part of the federal risk management process (Federal Finance Administration 2024). Conversely, the FOCP's CIP approach concerns risks from all infrastructure, regardless of its ownership.

6 German Federal Office of Civil Protection and Disaster Assistance (BBK) (2021 & 2019).

7 Federal Chancellery of Austria and Federal Ministry of the Interior – Masterplan 2014 (2015). The definition corresponds to that of the European Programme for Critical Infrastructure Protection (EPCIP) (European Commission 2006), which is based on EU Directive 2008/114/EC (superseded in 2023).

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The identification of critical infrastructure typically takes place at several levels. The top level involves identifying those sectors and subsectors (branches) that produce essential goods and services for the economy and the population. This is usually done from a top-down perspective and based on a small number of criteria, which also allows an initial differentiation with regard to the importance of a subsector for the system as a whole, i.e. its criticality. Thus, the Federal Council's CIP Strategy identifies nine sectors and 27 critical subsectors, whose criticality is assessed using a three-level traffic light system (Table 1).

Table 1: Critical infrastructure: sectors and criticality-rated subsectors

Sectors	Subsectors (branches)	Criticality*	Sectors	Subsectors (branches)	Criticality*
Authorities	Research and teaching	3	Information and communication	IT services	1
	Cultural assets	3		Telecommunications	1
	Parliament, government, justice, administration	2		Media	2
Energy	Natural gas supply	2		Postal services	2
	Oil supply	1	Food and water	Food supply	2
	District and process heating	3		Water supply	1
	Power supply	1	Public safety	Armed forces	3
Waste disposal	Waste	2		Emergency services	2
	Wastewater	2		Civil protection	3
Finance	Financial services	1	Transport	Air transport	2
	Insurance services	2		Rail transport	2
Health*	Medical care	2		Water transport	2
	Laboratory services	2		Road transport	1
	Chemicals and therapeutic products	2			

* Criticality (1 = very high, 2 = high, 3 = significant) indicates the relative importance of the subsector in terms of the potential impact that a failure lasting a few days to weeks would have on the population and the economy. The rating does not indicate the criticality of individual assets and applies in situations when the threat level is normal. In the event of disasters and emergencies, the criticality of subsectors may change (e.g. the health sector in the event of a pandemic).

Source: Swiss Federal Council (2023)

8 European Union Directive 2022/2557 (2022): paragraph 1 of the recital. The rationale and general thrust of the directive are summarised in paragraph 2: «[The previous Directive] provides for a procedure for designating European critical infrastructure in the energy and transport sectors (...). That Directive focuses exclusively on the protection of such infrastructure. However, the evaluation (...) conducted in 2019 found that, due to the increasingly interconnected and cross-border nature of operations using critical infrastructure, protective measures relating to individual assets alone are insufficient to prevent all disruptions from taking place. Therefore, it is necessary to shift the approach towards ensuring that risks are better accounted for, that the role and duties of critical entities as providers of services essential to the functioning of the internal market are better defined and coherent, and that Union rules are adopted to enhance the resilience of critical entities (...).»

The listing and rating of sectors and subsectors serves as a framework for inventorying and assessing the criticality of the lower levels of critical infrastructure (e.g. asset groups, facilities). This in turn requires specific criteria.

Switzerland's European neighbours take an essentially similar approach. In Germany, the federal and state governments have agreed on nine critical sectors as part of the current KRITIS strategy. Austria is directly aligned with the EU directive, which until 2022 used the energy and transport sectors and a total of eight critical subsectors. The current EU directive provides for 11 sectors, broken down into subsectors and specifically 52 «categories of entities».⁹

Criteria for assessing the criticality of critical infrastructure

In Switzerland, the criticality of the 27 subsectors was assessed using three criteria, based on the extent of damage, in the event of a subsector failure (FOCP 2010):

- (1) Impact on the population (number of people affected, intensity of impact)
- (2) Impact on the economy (direct financial damage, non-monetary economic damage)
- (3) Impact on other subsectors (specific dependency analysis).

At the lower levels, i.e. buildings and facilities, criticality is assessed based on further criteria such as the number of people supplied (market share) or the importance of an infrastructure asset for the functionality of the subsector (FOCP 2017). A standardised range of «a few days to several weeks» is assumed for the failure time criterion.

The new EU Directive 2022/2557 follows a similar approach. In addition to criteria such as the number of potentially affected users, the extent of damage, dependency and impact on other system areas, possible alternatives in the event of infrastructure area failures are taken into account.

In the CIP approaches considered here, the term «systemic importance» appears only in the German KRITIS context, where «systemically important facilities» refers to all identified critical infrastructure as well as any other facilities that «indirectly contribute to the provision of critical services». However, the term «systemic importance» does not feature in the Swiss and EU context.

2.2 Systemically important enterprises

Concept

Systemic importance is commonly defined as the importance (i.e. the significance or relevance in a particular context) that states, organisations, enterprises, products, services and professional groups (or their members) have for the operation and maintenance of a system, such as an economic or health-care system or basic services (Gabler Wirtschaftslexikon 2024). The definition does not specify the conditions, criteria or system boundaries for determining whether an entity has systemic importance.

⁹ The different number of critical sectors in KRITIS (Germany), EU Directive 2022/2557 and the CIP Strategy (Switzerland) is due to differences in the class boundaries. Overall, however, virtually the same functions are classified as critical. An exception is the «space» sector, which features only in the EU directive.

The first, key factor to consider in moving towards an understanding of systemic importance is the national economic system.¹⁰ The essential conditions and criteria are directly addressed in the definition provided by the commission of experts appointed in 2009 by the Federal Council to investigate the «too big to fail» (TBTF) issue in Switzerland:¹¹ An enterprise is classified as TBTF if the government cannot afford to allow it to fail. (...) [T]he central notion in the discussion is that of «systemic importance». The terms «too interconnected to fail» and «too complex to fail» are often used synonymously with TBTF. In this context, the use of the term has two typical features. Firstly, systemic importance refers to large, usually internationally active, enterprises in the private sector. Secondly, the service failure scenarios focus on the loss of economic performance caused by an enterprise's impending difficulties.

Criteria for assessing systemic importance

The expert opinion by Brunetti (2023) and the above-cited commission of experts report (2010) on which it is based provide a good, Switzerland-specific basis for an economic assessment of systemic importance. The commission of experts initially identified two conditions for the existence of systemic importance:

1. The enterprise performs services that are essential for the economy and indispensable. The main focus here is on networks and on basic provision of essential goods.
2. Other market participants cannot replace the enterprise's systemically important services within a time frame that is acceptable for the economy as a whole.

While the first condition is met by many enterprises, including infrastructure providers, it is the second condition that is the necessary and decisive factor in determining systemic importance. In reality, every enterprise in an economy based on the division of labour performs important services, the loss of which – especially in the case of large enterprises – can have a severe impact, whether due to supply chain disruptions or the loss of value creation and jobs. However, this does not pose a fundamental problem for the economy as a whole as long as the lost services can be replaced by other, possibly better, services within a reasonable period (which is ultimately evidence of a dynamic economy). Structural economic damage with unacceptable costs will ensue only if the lost essential services cannot be replaced within the necessary time frame, and it is only in this scenario that the criteria for systemic importance are met (Brunetti 2023).

To operationalise the two conditions and enable assessment of an enterprise's systemic importance, the commission of experts identified three criteria:

1. *Size and market concentration*: If a large enterprise exits the market, this primarily has a negative impact on employment and value creation; in the case of high market concentration, it may

¹⁰ For the assessment in specific cases, the system boundaries must be analysed in more detail. In the case of banks, for example, the international dimension is also important with a view to financial market stability. Similar considerations can be applied to the electricity market (see below).

¹¹ The Commission of Experts for limiting the economic risks posed by large enterprises was established by the Federal Council in November 2009. Its mandate included „defin[ing] the term TBTF“ and analysing the issue of systemic importance, not only in the financial sector but also in relation to other sectors (see Commission of Experts for limiting the economic risks posed by large enterprises, 2010).

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severely affect an economic sector or a region, but not the entire economy. Temporary disruptions in the procurement and goods markets are also expected to stabilise over time.

2. *Interconnectedness*: This criterion operationalises the external costs that arise from the failure in the form of loss of value creation and adjustment requirements on the part of suppliers, customers or investors of the failing enterprise. In extreme cases, a high degree of interconnectedness may mean that the failure of one key player triggers the failure of other players, thereby jeopardising the functionality of the entire system (domino effects, “too interconnected to fail”). Both criteria relate to an enterprise’s economic significance and are based on the first of the two aforementioned conditions.
3. *Lack of substitutability*: This criterion operationalises the second and decisive condition, which must be met for systemic importance to apply. This is because unacceptably high economic costs arise only if the market economy system is unable to compensate for the lost services, either through the offerings of other enterprises or the continued operation of systemically important areas. The larger and more interconnected the failing enterprise is, the higher the economic costs will be. Time is a key factor here: the faster and more completely the replacement of services can take place, the less damage the enterprise’s loss will cause and the less systemically important the enterprise is.

The commission of experts concludes that only large banks clearly meet all the criteria.¹² Brunetti (2023) explains that there is a clear international consensus on the definition of systemic importance (in the area of financial stability). The most important point of reference is the approach developed by the Basel Committee on Banking Supervision (BCBS) to identify global systemically important banks (G-SIBs). This approach comprises five criteria, four of which essentially correspond to the criteria developed by the Swiss commission of experts. In addition to the criterion of complexity, a fifth criterion relates to a bank’s cross-border activities, as its systemic importance to the global financial system is also considered (BCBS 2011 & 2021). Various academic articles then address the question of how systemic importance in the financial market sector can be measured on the basis of indicators. The focus here is primarily on methodological issues surrounding the calculation and weighting of the indicators, with the BCBS definition of systemic importance attracting barely any criticism. Thus, Brunetti (2023) does not see any new factors that would fundamentally call into question the definition of systemic importance developed in Switzerland in the context of the TBTF debate.^{13, 14}

¹² These criteria are also used to define the concept of systemic importance in the Banking Act (Art. 8 para. 2 BankA, SR 952.0).

¹³ A similar approach for Germany is presented by [Schneemann et al. \(2020\)](#). They identify «systemically important industries» based on their interdependence with upstream and downstream industries and the macroeconomic effects of a production failure. The analysis enables a list of industries to be drawn up, defined as follows: «We define industries as economically systemically important if they are particularly closely interlinked, via value chains, with the rest of the economy through the intermediate inputs they produce, so that a production stoppage would have a major impact on the economy as a whole.» The analysis defines indicators for systemically important industries and is based on input-output tables. According to the analysis, susceptible industries are primarily trade and logistics, food and beverages, and car manufacturing. Appreciable employment effects are also to be expected in business services, hospitality, and culture and entertainment. The article refers to issues similar to the criteria of «size and market concentration» and «interconnectedness», but it does not address short-term substitutability.

¹⁴ [Motion 23.3485](#) on systemic importance, submitted to the National Council, called for a definition of which enterprises are systemically important, irrespective of the sector, and for a guarantee fund to be set up to rescue systemically important enterprises. The motion was withdrawn at the end of 2024.

Although systemic importance relates to private sector enterprises, some state-controlled enterprises are also – in strictly functional terms – likely to meet the key criterion of lack of substitutability. Examples include Swisscom, Swiss Federal Railways (SBB) and significant parts of Swiss Post. In this case, however, the need for a government bailout would result from the fact that these enterprises perform statutory federal tasks for which there would often not be a sufficient private sector offering. This in turn is usually due to the characteristics of the fields in which they operate, such as high fixed costs with increasing returns to scale. However, the responsibility for guaranteeing the performance of tasks remains with the Confederation, which is thereby obliged to intervene at an early stage (besides the fact that it would want to protect its assets). Typically, this «hidden» systemic importance in relation to the aforementioned semi-public enterprises is given the highest criticality rating in the CIP context, even if the subsector under which the enterprise falls has a lower criticality.¹⁵

A central argument cited for the systemic importance of large banks concerns the specific conditions of the banking business, which make it impossible to resolve the enterprise in the event of insolvency and thus to take over or substitute the critical services within a reasonable time frame (see section 3.3). However, any general assessment of systemic importance must take into account the fact that, firstly, the time available for substitution depends on factors other than just the conditions of the bankruptcy proceedings (e.g. organisational arrangements for the spin-off of systemically important business areas). Secondly, demarcation of the relevant market is also important. If the market extends beyond the national border, there is likely to be greater scope for substitution within a reasonable time frame.

2.3 Comparison and assessment of criticality and systemic importance

There are significant commonalities, but also differences, between criticality and systemic importance. To enable a more precise understanding, the meaning of criticality in terms of the CIP Strategy and of systemic importance as defined by Brunetti (2023) will be assessed.

The Federal Council's CIP Strategy aims to strengthen the resilience of critical infrastructure, i.e. ultimately to reduce the likelihood of failures occurring and to mitigate their consequences if they do occur. The approach is comprehensive, with regard to the subsectors and the infrastructure components considered (aggregation levels: entire systems, enterprises, processes, operators, assets), the ownership structure (public, private, mixed) and also the scenarios leading to service failure (e.g. natural events, technical, societal or economic causes). To identify critical infrastructure and take efficient action, a coordinated approach with common standards is necessary. Criticality is key here: it is operationalised based on the three main criteria (impact on the population, economy and other subsectors) and using in-depth risk analyses. At the same time, it serves as a measure of the relative importance of a piece of infrastructure in the overall economic and social system.

A broader debate on systemic importance was triggered by the 2008 financial crisis. Centring around the TBTF issue in relation to private enterprises and the risk of an implicit state guarantee

¹⁵ The constitutional basis for the delegation of federal tasks is Art. 178 para. 3 Cst. The „responsibility for the guarantee“ is widely discussed in the public corporate governance literature; see for example Federal Council (2006), Corporate Governance Report section 2.1.

arising from this, the debate's primary aim is to understand the economic conditions, identify and contain potential crises at an early stage and reduce the risk of the government being forced into a costly bailout. Market system and business management factors dominate the risk scenarios and the resulting priorities for action. Only a few financial institutions remain within the strict interpretation of the three aforementioned criteria for systemic importance, and an extensive macroprudential and microprudential regulation has been established for these institutions. The extent to which large electricity suppliers, for example, should also be included has only recently been discussed in greater depth.

A commonality between criticality and systemic importance lies in the high economic costs arising in the event of the failure of an infrastructure provider with the highest level of criticality and of a systemically important enterprise. The criteria are closely related in this respect. For example, 'impact on population and economy' and 'size and market concentration' consider similar issues, as do 'dependency' and 'interconnectedness'.

However, the operationalisations differ when it comes to the criterion 'lack of substitutability'. This is a key factor in the systemic importance of an enterprise, but is not used for assessing criticality in the CIP context.¹⁶ Systemic importance is thus defined more restrictively than criticality, even at a very high level of criticality. It follows that systemically important enterprises necessarily have a very high level of criticality in the CIP context. Conversely, not all critical infrastructure with a very high level of criticality is also 'systemically important'. Figuratively speaking, systemically important enterprises represent the top of the critical infrastructure pyramid. A failure of their services would cause great economic damage on account of their size and interconnectedness alone, but the fact that the services could not be substituted within the required time frame would amplify the extent of the economic damage (e.g. through domino effects), making rapid government intervention unavoidable.

Although the criteria-based identification of infrastructure criticality and systemic importance of enterprises is objectified by means of additional indicators and threshold values, the complexity involved means that a purely quantitative, definitive operationalisation is all but impossible. The cause of the crisis as well as the economic-policy and economic environment are important. Therefore, policymakers have some room for manoeuvre in attributing criticality and systemic importance, depending on the context.

The criteria-based identification of subsector criticality and systemic importance of enterprises enables the need for government action to be assessed and appropriate measures to be taken. A broad range of government measures is available, as analysed conceptually in section 4.

¹⁶ However, the new EU Directive 2022/2557 effectively includes the criterion in Art. 7(1)(f).

3. Application of the systemic importance criteria in subsectors of highest criticality

The issue of systemically important enterprises is examined below with reference to the three criteria – size and market concentration, interconnectedness, and lack of substitutability – in the subsectors classified as having the highest criticality according to CIP (see Table 1).¹⁷

3.1 Oil supply

With a share of 46% of total energy consumption, crude oil remains Switzerland's most important energy source despite its declining significance. Its primary use is as a motor fuel (petrol, diesel, kerosene), while less than a quarter – and falling – is used as heating oil for heat production. The entire supply is imported. Of this, over 75% is transported as end products from European countries, while 25% originates from the only domestic refinery (Cressier, canton of Neuchâtel), which is supplied entirely with crude oil via the port of Marseille and the Marseille–Vernier pipeline. Imports are spread across various suppliers. In terms of interconnectedness with critical subsectors, there are significant dependencies on road and air transport, emergency services and the chemical, pharmaceutical and MEM industries.

In principle, supply shortfalls in the market should be relatively easy to substitute. However, supply bottlenecks – such as those caused by international conflicts, natural events or strikes – are conceivable, meaning that temporary and significant price fluctuations must be expected. In such cases, the compulsory stocks maintained by the national economic supply system serve as a buffer.

Due to high domestic demand, the oil supply is classified as infrastructure of very high criticality. While its size and interconnectedness are likely systemically important, the oil supply is also relatively easily substitutable due to its storability. Therefore, in this subsector no individual enterprise meets all the criteria for systemic importance. However, it can be assumed that the decline in demand for fossil fuels will intensify, which will deprive the Cressier refinery of its economic basis in the medium term and may give rise to calls for government support.

3.2 Power supply

The power supply includes all facilities and activities involved in delivering electricity to consumers. This encompasses the production, transport, storage, distribution and trading of electricity. In Switzerland, over 600 electricity supply enterprises are involved in supplying final consumers – private households, public and private enterprises and state entities – with around 60 TWh of power. Most of these are small local and regional providers. The largest enterprises, which play a market-defining role in virtually all stages of the supply chain, include Axpo Holding AG, Alpiq Holding AG, BKW AG and Repower AG. Among the medium-sized enterprises are Primeo Energie AG, Azienda Elettrica Ticinese (AET), Groupe E SA, Elektrizitätswerk der Stadt Zürich (EWZ) and Industrielle Werke Basel (IWB). Compared with other European countries, the Swiss market is relatively fragmented. Furthermore, due to its geographical location, Switzerland is highly integrated into the European supply system. Swissgrid AG, which operates the national transmission grid, also plays a crucial role. The enterprises mentioned are ultimately majority-owned by cantons and communes, albeit in some cases through complex ownership structures.

It is undisputed that the power supply is one of the most critical infrastructures. This is not only due to its indispensability for all households and businesses, but also to its high degree of

¹⁷ Unless otherwise stated, the following information is based on publicly available sources such as annual reports, publications from industry associations and the factsheets for the subsectors under review (FOCP, 2023)

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interconnectedness: any disruption or failure would directly and severely affect the functioning of all other critical subsectors according to CIP.

With regard to the systemic importance of individual electricity enterprises, it is evident that the three criteria – size, interconnectedness and lack of substitutability – are closely interdependent. However, the question of the extent to which individual (large) electricity enterprises should be classified as systemically important, and which instruments are appropriate for regulating the sector, is currently the subject of intense debate.

In the draft amendments to the Electricity Supply Act,¹⁸ the large power suppliers are designated as systemically important. The reasoning is that the failure of a major power supplier can trigger further non-compensable failures which, given the high level of interconnectedness between producers, traders, energy suppliers and consumers, could lead to the collapse of the entire supply system through a domino effect. This could result in very high – though unquantified – additional economic costs. More specifically, the draft amendments stipulate that a systemically important enterprise provides services that are central and in principle indispensable to the national or regional economy and cannot be replaced by other market participants within a timeframe acceptable to the economy. The total power plant output is a key factor in determining systemic importance.

Conversely, the question arises as to whether the uninterrupted continuation of system-critical services such as electricity production and trading is genuinely at risk in the event of a non-physical failure of a major electricity supplier (e.g. due to illiquidity). Substitution options within a reasonable timeframe do exist – for example, through the takeover of the failing enterprise by a competitor or temporary continuation by a rescue entity. This is also because an electricity supplier's assets is largely made up of investment assets, i.e. the infrastructure itself, the value of which can be assessed. Moreover, in principle the infrastructure services of large electricity enterprises can be provided without interruption in the event of bankruptcy proceedings (Dümmler 2022). It should also be considered that, under normal supply conditions within the European transmission grid, there is leeway to compensate for power outages – which provides valuable time. Finally, it must be acknowledged that it is also in the interest and responsibility of owners and electricity enterprises themselves to take additional precautions to prevent financial distress.

Against this backdrop, the question of whether large electricity enterprises are systemically important must be answered in the negative from an economic policy perspective. However, the provision of government emergency support should be assessed in greater detail on a case-by-case basis, particularly in light of the causes of the crisis. For instance, an unforeseeable serious shock – such as the disruptions in electricity trading triggered by the war in Ukraine – may justify one-off government support (Brunetti 2025). To avoid the need for government support in the face of similar future events, stronger regulation aimed at increasing the resilience of the electricity sector is warranted (e.g. requirements regarding organisational structure and transparency, minimum requirements for liquidity and equity capital).¹⁹

¹⁸ Federal Department of the Environment, Transport, Energy and Communications (DETEC) (2024).

¹⁹ To strengthen the resilience of the electricity sector and prevent economic risks for Switzerland, the temporary financial rescue mechanism for large electricity enterprises (FiRECA, SR 734.91), currently limited until 2026, should be replaced by comprehensive regulation. The 2024 consultation confirmed broad consensus on the need for new regulation, but the proposed measures – particularly minimum requirements for liquidity and equity capital – have encountered resistance. Critics argue that such requirements could hamper investment and thereby endanger security of supply. A new draft revision of the Electricity Supply Act is currently in preparation. This will also include a more detailed review of the liquidity and equity capital requirements, in line with the Herzog motion (22.4132). This work necessitates extending the temporary financial rescue package until the end of 2031 (DETEC 2025).

3.3 Financial services

In the financial services subsector, the focus is primarily on banks and the operators of financial market infrastructures. The services provided by these actors are indispensable for a functioning economy; major disruptions relatively quickly lead to upheaval for all other economic participants. Particularly important are the processing of payment transactions, the provision of capital and liquidity to businesses and private households, the investment and trading of capital, and the supply of cash.

The largest institutions in terms of total assets are UBS (a globally active universal bank), Raiffeisen Group Switzerland (retail, SMEs, mortgages), Zürcher Kantonalbank (a supra-regional universal bank), and PostFinance (payment transactions). Other major players in the Swiss financial centre include larger cantonal banks and asset management banks.

The degree of interconnectedness and dependency is directly linked to a bank's total assets and market size. This affects both the real economy and the financial sector itself, including insurance enterprises. The high level of interconnection in interbank transactions can also trigger domino effects within the industry.

The substitutability of banking services is limited and differs fundamentally from that of other enterprises or even critical infrastructures, for two main reasons. Firstly, lending and investment transactions are generally bespoke, non-standardised arrangements. They rely on time-intensive assessments of debtors and projects, which cannot easily be replaced or continued by another bank. Secondly, the principle of a debt restructuring moratorium – which in the case of other enterprises temporarily protects the assets side of the balance sheet from creditor claims in the event of insolvency, thus buying time to secure liquidity – does not apply in the banking sector. As most bank deposits are available on demand, creditors can theoretically withdraw their funds at any time (posing the risk of a bank run), making the orderly continuation of operations virtually impossible without substantial external liquidity support – particularly in light of the loss of confidence that typically accompanies such situations (Brunetti 2023).

The criterion of lack of rapid substitutability in the banking sector is therefore met in principle. Systemic importance arises when this is combined with significant size and a high degree of interconnectedness, including the potential for domino effects. According to decrees issued by the Swiss National Bank, the four banks mentioned – UBS, Raiffeisen Group, ZKB and PostFinance – are deemed systemically important; certain financial market infrastructures operated by the SIX Group are also classified as systemically important.²⁰ This status is accompanied by extensive regulation and the potential for government crisis support.²¹

²⁰ These are the Swiss Interbank Clearing (SIC) payment system, the SIX SIS central securities depository and the SECOM securities settlement system, and the SIX x-clear central counterparty ([SNB website](#), accessed 7 May 2025).

²¹ Hess (2019) points out that the system boundaries for ensuring financial stability tend to expand in light of recent market developments – such as the entry of non-banks into the lending and mortgage business – and technological advances, including the central importance of IT services, the risk of cyberattacks, and the emergence of cryptocurrencies and new financial products.

3.4 IT services

Information technologies are an integral part of modern societies and an indispensable production factor. This subsector is therefore regarded as highly critical.

With regard to the question of systemic importance, it is necessary to distinguish between various service and product segments, each operating in dynamic, global markets. A basic distinction can be made between hardware products and software services, and within software, between areas such as operating systems and infrastructure programs, applications, enterprise software, communication software, databases, cloud services, and cybersecurity. Two risk scenarios are of particular relevance: the failure of IT services due to the collapse of a key IT provider, or due to a widespread cyberattack. The latter cannot be effectively mitigated through government emergency support and is therefore excluded. Nonetheless, the government plays a crucial role in risk prevention.

The software market includes major international enterprises that are so large and interconnected that their failure could cause significant temporary disruption. However, the provider landscape is sufficiently broad to ensure that discontinued services could be replaced by other providers or continued through takeovers: substitutability within a reasonable timeframe would be ensured. As such, systemically important enterprises whose collapse would necessitate government intervention are hardly conceivable in the IT sector – even in the case of software giants such as Microsoft, Google or SAP.

However, the two scenarios mentioned above highlight the importance for every enterprise, critical infrastructure or public institution to take the necessary measures within their own remit to minimise system failures and data loss (e.g. redundancies, multi-cloud strategies, emergency plans).

3.5 Telecommunications

Services in the telecommunications subsector include the transmission of data and information, as well as the construction and operation of all necessary networks and infrastructure. This encompasses, in particular, mobile telephony, broadband, and television services. As with IT services – with which there are overlaps – telecommunications delivers essential services to private households, businesses and the state that are indispensable in a modern economy. This accounts for its very high criticality.

The Swiss telecommunications market is dominated by two enterprises offering a comprehensive range of services: Swisscom AG, which is majority-owned by the federal government and also holds the licence for the universal service, and Sunrise, which is foreign-owned and the second-largest provider. Salt, which also provides a full range of services, ranks a distant third.

Swisscom in particular, but also the smaller Sunrise, have a significant size in the Swiss market, with strong interconnectedness to private households, businesses and other critical infrastructures. The loss of either enterprise would have a considerable temporary impact on the provision of telecommunications services. However, even in this subsector of very high criticality, the question of systemic importance does not arise directly. Firstly, services could be taken over and continued by a third-party provider, meaning substitutability is ensured in principle. Secondly, in certain areas of

Swisscom's operations, the federal government holds a guarantee obligation, meaning it must ensure the continued provision of the relevant services through appropriate support measures.

3.6 Water supply

Water use falls under the responsibility of the cantons. The cantons have largely delegated the supply of drinking water, industrial water and fire-fighting water for the population and businesses to the communes. As a result, the water supply system is highly decentralised and is operated by a large number of mostly small communal utilities or special-purpose associations, organised either as part of the local administration or as outsourced entities. The networks and facilities for water abstraction, treatment, transport, storage and distribution are locally based and, due to their high fixed costs, are operated as monopolies within their respective service areas.

Major disruptions or failures in the water supply can occur as a result of natural events, power outages or IT failures, and can quickly lead to shortages with reduced comfort and interruptions to production. Substitution options are limited and costly. However, such supply bottlenecks are almost always confined to local or regional areas, and their consequences can be mitigated through appropriate precautionary measures.

At the local level, the criticality of the water supply is rated as very high due to inelastic demand and the limited short-term substitutability. A supra-regional and prolonged supply failure, however, is conceivable only in the event of a major incident (e.g. earthquake or conflict). Significant macro-economic knock-on effects on the production of other goods and services are also unlikely. Given its decentralised, public organisation, the water supply sector does not include any large enterprise that could be classified as systemically important.

3.7 Transport

Road transport

Road infrastructure serves a substantial share of passenger and freight transport. It includes the entire network of motorways, main and secondary roads, including tunnels and bridges, as well as freight transport enterprises and public transport services.

The road system is classified as very critical in the CIP context. Indeed, a prolonged failure of a central connection (e.g. Gotthard tunnel) would lead to disruptions in the supply of goods, the regional economy and also the emergency services. However, this subsector is not relevant to the question of systemic importance. This is also because all roads are publicly owned and the owners would have to act quickly anyway in the event of significant disruption or destruction. While freight transport enterprises are easily substitutable, public transport service providers are often local or regional enterprises.

Rail transport

Rail transport delivers essential services, particularly in passenger mobility, including on short notice. Its interconnectedness with other subsectors is considerable, which is why it is rated as highly critical. There is, in principle, no viable rapid substitute. The main service provider is Swiss Federal Railways

3. Application of the systemic importance criteria in subsectors of highest criticality

(SBB), which transports around 1.2 million passengers daily. However, the issue of systemic importance for private enterprises does not arise, as SBB is wholly owned by the federal government and fulfils federal responsibilities for which the federal government holds a guarantee obligation.

Air transport

Air transport provides essential services for Switzerland, which is why it is rated as highly critical in the CIP context. Zurich (ZRH) and Geneva (GVA) airports connect Switzerland to the international air transport network: in 2024, ZRH handled over 31 million passengers and 436,000 tonnes of air freight (GVA: 17.8 million passengers, 93,000 tonnes of freight). In 2024, 68 airlines operated from ZRH to 200 destinations in 70 countries (GVA 2024: 54 airlines to 143 destinations in 46 countries). Airports are a key locational factor, especially for internationally active enterprises and organisations based in Switzerland, and also play an important role in goods supply.²²

While ZRH and GVA were able to maintain liquidity during the 2020 pandemic through short-time working and investment freezes, and did not require additional public support, the airline Swiss and aviation-related businesses encountered liquidity difficulties due to the collapse in demand. At the request of the enterprises, the federal government granted loan guarantees totalling over CHF 1.3 billion. The federal government justified this on the grounds that these enterprises play an important role in terms of locational policy and are economically viable under normal conditions. However, according to the criteria outlined in section 2, they are not systemically important, given that their supply functions could be substituted under normal conditions within a reasonable timeframe.

3.8 Overview

The analysis of subsectors of very high criticality with a view to systemically important enterprises shows that the three discussed criteria are applicable and offer valuable guidance for economic policy considerations. Table 2 presents a simple summary of this cross-sectoral analysis.

If the three criteria for systemic importance are applied to other subsectors of critical infrastructure with lower criticality, it becomes evident that the size or interconnectedness of large enterprises within a subsector alone does not constitute systemic importance from an economic standpoint. Examples include major retailers or large internationally active enterprises (or parts thereof) in the chemical, pharmaceutical or food industries. In these cases, the economic relevance lies not in national supply, but in their contribution to value creation and employment. The same holds true for the processing of raw metals (e.g. steel and aluminium), where, alongside value creation and employment, environmental arguments are also cited to underscore economic significance. In all these examples, substitution by other market participants is feasible – thus, criteria-based systemic importance does not apply.

²² Wittmer (2021) offers a conceptual presentation on the systemic importance of Swiss aviation.

3. Application of the systemic importance criteria in subsectors of highest criticality

Table 2: Simplified classification of the systemic importance of enterprises in subsectors of very high criticality

Subsectors of very high criticality according to federal CIP	Enterprise, supplier, operator*	Criteria			Assessment/comments
		Size & market concentration	Interconnectedness	Lack of substitutability	
Oil supply	Cressier refinery; importers (Oil: Varo Energy AG; oil derivatives: BP, Shell, Agrola)	Yes	Yes	No	The loss of the domestic refinery could be offset or continued by third parties. Temporary price reactions are to be expected. —> no systemically important enterprises
Power supply	Large electricity market enterprises (production, trade) (Axpo, Alpiq, BKW, Repower AG)	Yes	Yes	No	In general: mostly publicly owned (cantons, communes). Individual providers: very high interconnectedness; substitutability may be challenging depending on the cause of the crisis, but appears feasible. —> in principle, no systemically important enterprises
Financial services	Large banks (UBS, Raiffeisen Group, ZKB, PostFinance); financial infrastructure (SIX Group)	Yes	Yes	Yes	Size and market concentration, degree of interconnectedness, and lack of substitutability within a reasonable period of time are all fulfilled. —> systemically important enterprises
IT services	Large software manufacturers (Microsoft, SAP, ALSO AG, Swisscom, Tietoenvy, Google)	Yes	Yes	No	Failure of services can be taken over by third parties; redundancies are important —> no systemically important enterprises
Telecommunications	Large telecommunications providers with their own network infrastructure (Swisscom, Sunrise, Salt)	Yes	Yes	No	Failure of services can be replaced or continued by third parties. Swisscom: majority shareholder is the federal government, with a universal service concession (federal guarantee obligation). —> in principle, no systemically important enterprises
Water supply	Local water suppliers	No	No	No	Local monopolies, decentralised supply, no impact on the overall economy. —> no systemically important enterprises
Transport	Road: publicly owned infrastructure, freight transport enterprises, public transport operators	– Partially yes	– Partially yes	– No	Infrastructure: question of systemic importance does not arise. Transport enterprises: good substitutability or public ownership
	Rail: SBB as network and infrastructure operator and largest transport provider	Yes	Yes	–	Public enterprises, federal guarantee obligation
	Air: infrastructure: airport operators ZRH and GVA; transport: Swiss	No No	Yes Yes	No No	Resolution with a rescue entity is possible in principle; in principle replaceable by other airlines —> in principle, no systemically important enterprises

* The list includes some significant enterprises, but is not exhaustive.

Source: own presentation

4. Conceptual considerations on the need for government action in the event of a crisis

In the event of a serious failure in the supply of goods and services to the economy and society that could result in significant economic costs, the government has a range of measures at its disposal to prevent or contain such damage. This gives rise to two fundamental questions:

1. Is there a need for government intervention?
2. If so: To what extent, in what form and at what time are interventions appropriate?

In addition to clarifying the competent level of government, answering the first question requires an economic policy analysis. If this analysis concludes that a service failure can be absorbed by private providers within a reasonable timeframe, then intervention is not necessary. The discontinuation of a key service due to an enterprise's exit and its compensation by market mechanisms is viewed as a feature of a dynamic market economy that accommodates structural change and allows more productive ideas to prevail. This holds true even if temporary setbacks in value creation and employment must be accepted at the local level (Brunetti 2023).

The necessity of government emergency support also depends on how unforeseeable a serious shock is. If a major incident – such as an extreme price shock – is unforeseeable for economic actors, one-off government intervention may be justified. However, this assessment changes if a similar event occurs again and enterprises have the opportunity to take adequate precautions and appropriate regulation can be introduced (Brunetti 2025).

The question becomes more pressing the higher the criticality or systemic importance of the services or enterprises in question. These examples also offer a clearer framework for illustrating the range of possible measures. The second question is therefore briefly examined in relation to systemically important enterprises and highly critical infrastructures, and is conceptually presented according to the level of intervention involved in the respective measures.

The extent to which a government measure is far-reaching depends on the degree of interference with an enterprise's rights of disposal and the costs such a measure entails for the enterprise or the government. Less intrusive measures include, for example, industry recommendations for good corporate governance, the application of which is voluntary. These may involve implementing certain ISO standards (risk management, business continuity, IT security etc.) or expanded annual reporting. The level of intervention increases when the application of such standards becomes legally mandated.

Even more far-reaching are measures such as the establishment of a market supervisory authority with the power to issue directives (e.g. FINMA, ElCom, Swissmedic), or requirements concerning reserve holdings – for example, equity and liquidity requirements (financial service providers, energy suppliers), compulsory stockpiles of essential goods (fuels, medicines, food) or mandatory production capacity (power plant reserves). Enterprise organisation requirements that facilitate the rapid substitutability of discontinued enterprise service areas in the event of a crisis should be similarly categorised. These include measures that ease the restructuring or resolution of an enterprise in the event of insolvency, such as group structures with independently capitalised subsidiaries. Regulations ensuring redundancy in IT systems would also fall under this category.

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Finally, the more far-reaching measures include various forms of capital and liquidity support – such as credit guarantees, public liquidity backstops (PLB), other financial rescue mechanisms – as well as government participations or temporary public ownership (TPO). All of these measures can be implemented with varying degrees of stringency in specific cases, which affects the level of intervention and, ultimately, the associated costs for the enterprises concerned and for the government.

The simplified presentation of several key measures of varying scope in Table 3 also highlights the importance of distinguishing between preventive and reactive measures in terms of timing. Preventive measures are taken before a critical event occurs. Their aim is, on the one hand, to strengthen resilience and thereby reduce the likelihood of a service failure. These typically include governance-related actions, market supervision and reserve holdings. On the other hand, preventive measures are intended to relieve the government from the obligation to intervene by improving the substitutability of critical services (e.g. enterprise organisation requirements enabling the rapid spin-off of individual business units). Reactive measures, by contrast, are taken after a critical event has occurred. Both types of measures aim to mitigate the consequences of a service failure, i.e. to reduce its economic repercussions. This usually involves far-reaching interventions or backstop instruments such as credit guarantees, liquidity assistance or (temporary) government participation or takeover. Some measures may generate both preventive and reactive incentive effects.

When selecting the appropriate policy mix, the government must take various aspects into account. These include:

- *Efficiency of measures (output/input)*: Government interventions in this context aim to enhance the resilience of the economy or to avert economic damage in the event of a crisis, thereby generating a (sometimes substantial) benefit. These benefits must be weighed against the associated costs. In the case of preventive market regulation, the costs are typically borne largely by the affected enterprises. These costs vary depending on the intensity of regulation. In simpler cases, administrative and organisational burdens increase (e.g. governance requirements). Stricter rules on reserve holdings or corporate structure may incur costs that could result in competitive disadvantages (e.g. liquidity requirements). By contrast, the very high costs of reactive measures are primarily borne by taxpayers, either through direct impacts on public finances or indirectly through ultimate liability risks associated with loan guarantees, liquidity assistance or state ownership stakes. The selection of a package of measures must therefore be based on careful cost-benefit analysis. It should also be borne in mind that numerous smaller interventions across different policy areas, even if well justified, can collectively lead to overregulation, potentially hampering economic dynamism.
- *Effectiveness of measures (achievement of objectives/input)*: The effectiveness of the measures mentioned varies considerably. Key factors include not only the specific design of the intervention but also the characteristics of the sector affected. Equally important is the assumed risk scenario or the cause of the crisis. For instance, credit guarantees have proven effective in addressing liquidity issues during a pandemic. However, such measures are ineffective if the loss of critical services is caused by a cyberattack on the IT systems of a systemically important enterprise or by physical or technical disruptions. In such cases, measures to enhance resilience – such as geo-redundancy or multi-cloud solutions – become increasingly important.

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- *Moral hazard*: If market actors (enterprises, investors, etc.) can reasonably expect that the government will rescue their business in a crisis, they are likely to take on greater risks, aiming for higher returns without bearing the corresponding costs. At the same time, there may be incentives to develop corporate structures that enhance their perceived systemic importance (Brunetti 2025). This, in turn, increases the likelihood that the government may be compelled to intervene in a corporate crisis. Therefore, the objective of any measures must be to minimise such moral hazards through careful design – for example, by imposing specific conditions and requirements that management and owners must meet if government support is granted (e.g. dividend bans, commitment fees, usage fees, transparency obligations, cooling-off periods, etc.).

4. Conceptual considerations on the need for government action in the event of a crisis

Table 3: Conceptual overview of government measures in the case of system criticality and systemic importance

Measure	Governance recommendations (reporting, RM, BCM, compliance etc.)	Governance requirements (reporting, RM, BCM, compliance etc.)	Market supervision (with authority to issue directives and impose sanctions)	Reserve requirements (equity/liquidity buffers, compulsory stocks, power plant reserves)	Enterprise organisation requirements (restructuring / resolution, IT system redundancy)	Guarantees (bank loans, PLB, other financial backstops)	Capital participation, TPO, nationalisation
Level of intervention	low	medium	medium to high	medium to high	medium to high	high	high
Timing of measure	preventive	preventive	preventive	preventive	preventive, possibly also reactive	preventive, possibly also reactive	reactive
Design options	scope and depth of recommendations	scope and depth of requirements	scope and depth of supervisory powers, supervisory practice	scope and stringency of requirements	scope and depth of requirements	scope, conditions and duration	scope, conditions and duration
Moral hazard incentives	none	certain incentives to circumvent requirements (e.g. lack of transparency)	certain incentives to circumvent requirements	certain incentives to circumvent requirements	not very likely	strong incentives depending on requirements and conditionalities	potentially high in the case of capital participation; otherwise largely internalised
Areas of application	all areas in principle	subsectors of high criticality	subsectors of highest criticality and systemically important enterprises	subsectors of highest criticality and systemically important enterprises	subsectors of highest criticality and systemically important enterprises	systemically important enterprises	systemically important enterprises
Comments	voluntary participation with a certain reputation function	additional administrative costs for enterprises	additional administrative costs for enterprises and supervisory authority	higher capital costs for the enterprise depending on design, trade-off with competitiveness	higher capital costs for the enterprise depending on design, trade-off with competitiveness	high risks and costs for the state (provision, default risks)	very high risks and costs for the state (provision, default risks, owner risks)

Source: own presentation

5. Conclusions with a view to fiscal policy

This paper takes a cross-sectoral, criteria-based view of systemically important enterprises and classifies the range of policy measures conceptually from an economic policy perspective, using Switzerland as an example.

Section 2 shows that there are meaningful and applicable definitions and criteria for the criticality of infrastructures and the systemic importance of enterprises that are relevant for economic policy decisions. The terms 'criticality' and 'systemic importance' share significant similarities, but also some differences.

Criticality is a measure of the importance of critical infrastructures for the supply of essential goods and services to the economy and society. It serves to identify critical infrastructures across sectors and allows for strategic prioritisation. It also provides the basis for standardised risk management aimed at strengthening the resilience of critical infrastructures – and thus of the overall economy – against a broad spectrum of threats. The underlying approach is therefore comprehensive, encompassing infrastructures of varying levels of aggregation, ownership structures and threat scenarios.

Systemic importance was examined in greater depth following the 2008 financial crisis and in the context of too-big-to-fail (TBTF), with a primary focus on large, mostly international enterprises in the financial sector. Applying the three economic criteria – size and market concentration, interconnectedness, and lack of substitutability – in a strict sense, the term refers to enterprises whose failure would necessitate government intervention, as the resulting economic costs would otherwise be unacceptably high.

The close relationship between the terms 'criticality' and 'systemic importance' is evident in their shared reference to the high economic costs that may result from the failure of an infrastructure provider with the highest level of criticality or a systemically important enterprise. The two concepts are also based on largely similar criteria. For instance, the criteria 'impact on the population and the economy' and 'size and market concentration' describe comparable circumstances, as do 'dependency' and 'interconnectedness'.

On the other hand, criticality and systemic importance differ – beyond their respective contexts of application – in the criterion of lack of substitutability. This criterion is central to the concept of systemic importance, but is not explicitly used in the assessment of criticality in the CIP context. As such, systemic importance is a more narrowly defined concept than criticality, even at the highest levels of criticality. It follows that while systemically important enterprises in the CIP context exhibit very high criticality, not all critical infrastructures with very high criticality consist of enterprises that meet the stricter definition of systemic importance.

In contrast to this conceptual understanding, the criteria mentioned are rarely referenced in political debate. At the same time, the term 'systemic importance' is increasingly used as a buzzword, applied variously to enterprises, institutions or professional groups. While these may all deliver economically significant services, they ultimately do not fulfil the criteria for systemic importance. In such cases, the term is often employed to promote particular interests. This underscores the importance of applying the concept of systemic importance in a criteria-based manner to ensure a coherent economic policy assessment. Nonetheless, a certain degree of discretion remains,

which may depend on the specific cause of a crisis as well as the prevailing economic and policy environment.

In section 3, an initial analysis of the subsectors with the highest criticality in relation to the systemic importance of key enterprises based on the three criteria yields the following picture: the criteria of size and market share, as well as interconnectedness, are often sufficiently met, whereas a lack of substitutability seldom appears plausible. As a result, in principle, only the four largest banks in Switzerland can be considered systemically important. The question of whether large electricity suppliers qualify as systemically important must generally be answered in the negative, though emergency government support in individual cases should be assessed in greater detail with regard to the specific causes of a crisis. Two additional points are worth noting: firstly, Swisscom and SBB are likely to fulfil all three criteria for systemic importance, but as publicly owned entities, the responsibility for any major service failure would ultimately lie with their owners. Secondly, in the IT services subsector, it is questionable whether a large provider's extensive failure could realistically be substituted within a reasonable timeframe. Failure scenarios unrelated to business difficulties are also conceivable in this field.

As outlined in section 4 on the need for government action, the primary objective in coping with critical infrastructures and systemically important enterprises is to prevent major economic harm caused by service failures. The criteria-based identification of criticality or systemic importance provides the framework for assessing the need for action and implementing appropriate measures. A range of measures with varying levels of intervention is available, and determining the responsible level of government in the first place is essential. At one end of the spectrum, preventive measures such as requirements for good corporate governance aim to enhance resilience to exogenous shocks and lower the probability of needing government support. At the other end, more far-reaching policy tools such as public liquidity backstops or financial rescue mechanisms, and in extreme cases, forms of state participation in the enterprise, are available. These measures, which are potentially more costly for the government, are intended to mitigate the impact of service disruptions, i.e. to reduce the economic costs in a crisis scenario.

Particularly in the case of far-reaching backstop policy instruments such as public liquidity backstops or financial rescue mechanisms, it is important to recognise that the risk of moral hazard increases due to the implicit or explicit state guarantee. If such instruments are deployed, they must be accompanied by robust stipulations – including strict conditionality, fees, high transparency and clear time limitations – to mitigate the risks associated with state guarantees and to limit the public sector's ultimate liability exposure.

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