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EUROPEAN VALUATION STANDARDS 2025

Krzysztof Grzesik on the Europeanisation of real estate and valuation

EDITORIAL

EVS 2025 and the Blue Book constellation at Europe's cutting edge

The Sturm und Drang of the here and now are often so blinding that the significance of events only appears with hindsight, an EU speciality, and never more than now: there's a European Zeitgeist of decline and impoverishment stoked by high prices and housing shortages compounded by a dark view of relentless EU enlargement and uncontrolled immigration. And yet, Europeans together are facing up to all the great collective challenges of our time: health, defense, space, industrial transition and technological change. Not just by legislating (crucial as that is) but by doing.

Perhaps the area that Europeans least associate themselves with is high tech. On the contrary, there's a perception that Europe is losing the most decisive race of all. And yet...

- European tech is worth almost 3 trillion euros, growing at 27% per annum since 2015.
- Europe creates the same number of start-ups annually as the U.S.
- 30% of all world start-up financing is European compared to 36% for the U.S. and in Europe start-ups are growing at a rate of 24% per annum as compared to the U.S.'s 4%, on course to surpass the U.S. in four years.
- 1.9% of European start-ups become unicorns, the same figure as the U.S.
- Europe has the advantage in Impact Tech[1] with over 50% of seed investment going to companies contributing to the UN's Sustainable Development Goals (SDGs).
- Europe has twice as many software developers as the U.S. and has four of the ten best technical universities in the world compared to the U.S.'s three.
- 18% of the world's AI research talent is in Europe as compared to 20% in the U.S.
- Capital risk funds are more profitable in Europe than in the U.S. [2]

[1] An emerging subset of technologies that is geared toward impact – in short, that aims to produce wide-ranging social, economic and environmental results

[2] From "L'Europe est à l'orée de devenir une superpuissance mondiale dans le domaine technologique" by Tom Wehmeier, partner, Atomico, the main European capital-risk fund, and Niklas Zennström, Cofounder of Skype, founder and director general of Atomico and member of Scale Up Europe – Le Monde, 13 June 2023

Essential ingredients of that are the critical mass of enlargement and the welcoming of talent from across the globe, while a further boost will come from the UK's recent rejoining of Horizon Europe, the EU's key funding programme for research and innovation with a budget of €95.5 billion for 2021-2027. In its messy way, and defying Newton's second law of motion, Europe's acceleration increases as its mass increases.

Europe is still grossly inferior to the U.S. in terms of financing all this but the solution is there: the Capital Markets Union that the Letta and Draghi reports urgently call for and that EU lawmakers are set on delivering.

Real estate is at the heart of Europe's technological mutation. Commercial property is adapting to all the special requirements of those who develop or use the new technologies and all real estate is embarking on the long, hard process of decarbonisation with technology shaping every level in the construction and renovation chain.

EVS 2025 embraces sustainability, decarbonisation and technology, not just with the Standard on Valuation and Energy Efficiency now crucially enhanced by a methodology, but throughout the Blue Book, including education.

Europe's technological upheaval is pervasive, infiltrating every sector of the economy. For the valuation profession, that's a call to a cross disciplinarity that is already Blue Book reality because EVS 2025 does not stand alone; it joins ranks with European Business Valuation Standards (EVS-BV) and European Plant, Machinery & Equipment Valuation Standards (EVS-PME).

All three Blue Books were designed in close coordination between the various standards boards to ensure coherence of common principles[3] and facilitate cross disciplinarity[4]. In this issue of EVJ, Dana Ababei takes a further step in her article "Cross disciplinarity in complex valuation projects".

EVS-PME was also the first to integrate the massive valuation impacts of the European Green Deal[5] and the coming 2nd edition of European Business Valuation Standards is surely destined to be the flagship Blue Book for charting technological impacts on value (spoiler: start-up valuation is in the pipeline).

In this confusing age of change, nothing is a given apart from vocal pessimism and pain. But Europe is far better equipped to break through than many think, as the valuation profession gears up to estimate the outcomes.

Michael MacBrien, Editor

3 "European Plant, Machinery & Equipment Valuation Standards 2022 – Steeped in Blue Book tradition, in sync with the EU's climate/industrial transition" by Konstantinos P. Pallas – EVJ Issue n° 27, September 2022

4 "Real Estate Valuation and Plant, Machinery & Equipment Valuation – An indispensable alliance for valuing the energy efficient transformation of the European building stock", by Ana Caldeira Martins – EVJ Issue n° 25, March 2022

"Green Deal decarbonisation of the building stock rides on technical building systems" by Ana Caldeira Martins – EVJ Issue n° 30, July 2023

5 "Equipping valuers for EU carbon reduction regulation" by Ioannis Koutsogiannopoulos – EVJ Issue n° 24, December 2021

#01

A changing real estate industry in Europe and beyond

Opening address by Krzysztof Grzesik REV FRICS, Chairman of TEGOVA

30th European Real Estate Society Annual Conference
Gdańsk, 27 June 2024

Krzysztof Grzesik

This talk won't be about "the latest real estate trends". On that you can read any number of views and their opposite in the property press.

Nor will it be about Europe and "the bigger picture". It will be about Europe and its impact on the rest of the world as seen through the prism of real estate and valuation.

When I say "Europe", I mean the 27 Member States of the European Union, the three countries of the European Economic Area and the nine EU candidate countries that are adapting their laws to the EU legal order as a precondition for accession.

The term 'real estate industry' captures the entire chain: construction, development, rental, management, brokerage and valuation, all of which are interdependent and viewed as whole under some of the great EU legislative programmes of our time.

The emergence of EU real estate policy and the transformation of European Valuation Standards

It's worth recalling that for much of the seventy-year history of the Union, real estate was a very secondary part of EU activity. Not only was housing policy not even a shared EU competence – meaning that the EU couldn't come near it – but for a long time the industry and many governments took the view that commercial real estate business was hands off as well, because "buildings don't move across borders". It wasn't until the nineties that the UK government unwittingly confirmed real estate's place in the EU legal order with its marvellously-named "English Partnerships", a brown-field development scheme reserved for nationals that caused the European authorities to state and enforce the obvious: that buildings don't move across borders, but real estate investment flows do.

"The valuation of real estate has become a leading force in European integration via two royal roads: ensuring the safety and security of financial and real estate markets, and decarbonising the building stock."

It was also about thirty years ago that real estate investment broke out of national borders while buildings became the subject of EU regulation.

In Euro-language, "real estate business" translates as the freedom to buy and sell land and buildings anywhere in the Union without restriction. In theory, that was already in the Treaty of Rome back in 1957 seeing as it is treated simply as one of many aspects of the "free movement of capital", one of the then Common Market's Four Freedoms along with free movement of people, goods and services. In practice, it took secondary legislation to get the job done. EU law on the free movement of capital didn't pass until the eighties, and it took ten years more for property investors to actually start doing something with it. But once they got going, they never looked back because cross-border real estate investment soon reached the tens of billions of euro-equivalent per annum and went on growing, becoming the second most important intra- and inter-European investment flow after computer parts.

At the same time, the building sector started to be impacted or even squarely targeted by EU law: The even then very powerful EU competition authorities broke up an impressive number of construction, construction-products and lift and escalator cartels, setting record levels of fines that were only recently surpassed by the hits on the U.S. tech giants. And it was also in the nineties that land and buildings became seriously impacted by EU environmental law and a little later by energy efficiency legislation.

And yet, Ladies and Gentlemen, I would venture that none of this was fundamental to "the real estate industry" as a whole. Certainly, the largest U.S., UK, Dutch, French and German real estate funds were buying up a lot of Grade A European office property, but otherwise, everything went on as before, all of us living our largely national careers even if unbeknownst to us some of the regulation we operated under was now of EU origin. It was a situation well adapted to part of the title you gave me for this talk: "Real Estate Industry in Europe", not "European Real Estate Industry".

For real estate, as for the banking industry to which we are so closely related, the watershed was the economic and financial crisis of 2008 to 2012. That was when finance and real estate mutated into European industries. And since then, like the Union itself, it's gone deeper.

The Crisis of 2008-2012 was the first great crucible for the emergence of a sovereign Europe, shortly to be followed by the crucibles of plague and war. That was the first time that Europe did "whatever it took" simply to survive and it meant nothing less than the transfer of banking supervisory power to EU law and the ECB. This was crucial for real estate because shaky real estate collateral was seen as the single most grave and systemic factor of bank failure. Indeed, it was seen as the very origin of the crisis, initially from the U.S. That was when real estate went from being just another late-arrival component of the EU Internal Market to being key to the safety and security of financial markets. It was also the moment when valuation became the most important component of the EU real estate policy mix because that's when reliable valuation by qualified, independent professionals became top EU policy, embedded at the time in the Capital Requirements Regulation of 2013, the Mortgage Credit Directive of 2014 and the ECB Asset Quality Review manual of the same year.

TEGOVA had the prescience to see all that coming and to transform our European Valuation Standards. Until that time, EVS were international standards like any other, in truth not that easy to distinguish from RICS standards or those of the International Valuation Standards Council. EVS 2012 was a major mutation, designed from start to finish to be in lock-step with EU law and containing an entire section on European Union Legislation and Property Valuation so as to educate our 70 000 valuers across the Union to the EU regulatory context.

The European authorities took notice. The first appearance of TEGOVA and EVS in EU law was in the Mortgage Credit Directive, but our "Hamiltonian moment" came when the ECB, in its first Asset Quality Review, gave EVS precedence over all other standards making EVS truly the standards of the Union. The ECB has continued to do so in successive editions of the AQR manual ever since.

The valuation of real estate has become a leading force in European integration via two royal roads: ensuring the safety and security of financial and real estate markets, and decarbonising the building stock. These EU policies ensue from two game-changing EU legislative programmes that have both just come to fruition: the Banking Package and the European Green Deal.

The Banking Package

A pillar of the Banking Package is a revised Capital Requirements Regulation that makes valuation even more central to the Regulation's primary objective of buttressing the European financial system by ensuring the quantity and quality of bank capital and raising safeguards against valuation-induced systemic bank risk. In a revolution for our conservative profession, market value no longer stands supreme. It is now 'complemented' by a concept of 'property value' based on valuation using 'prudently conservative valuation criteria' by which:

i. the value excludes expectations on price increases;
ii. the value is adjusted to take into account the potential for the current market value to be significantly above the value that would be sustainable over the life of the loan.

Basically what's happening here is that at least as far as the valuation of bank collateral is concerned, the European authorities are no longer satisfied with a stand-alone 'market value' that they correctly view as a 'spot value' at the date of valuation. They want to 'secure the future' by excluding expected price increases and internalising the potential for future lower market values.

We lost no time. A year before the Regulation was formally voted, as soon as we knew there was political agreement on this particular provision, the European Valuation Standards Board published guidance on the application of prudently conservative valuation criteria in the various situations a valuer is liable to face: valuing under the income approach, using the direct capitalisation model, a DCF model, treating rent increases and calculating the developer's profit in the residual method of valuation. All that is now a Guidance Note in the imminent EVS 2025.

This typifies the now longstanding relationship between EU law and EVS: the law shapes the standards and without the standards, the law would be impracticable. That relationship has reached a new level of sophistication and 'neural interconnection' with the European Green Deal and the Green Deal's own inter-relation with the Banking Package.

"the now longstanding relationship between EU law and EVS: the law shapes the standards and without the standards, the law would be impracticable."

The European Green Deal

The European Green Deal is the most ambitious and comprehensive EU legislative package since the 300-law programme to complete the Single Market forty years ago. The well known goal – embedded in the European Climate Law – is European carbon neutrality by 2050 and a 55% reduction in GHG emissions by 2030 compared to 1990 levels. To achieve this, the package had to cover the four great carbon emitters: agriculture, industry, transport and buildings (the last being the single largest source at 36%). At the very end, some of the agricultural laws were watered down to some extent, but almost everything else came through intact.

For buildings, everything is now on the statute books: Extension of the EU Emissions Trading System to buildings, Renewables Directive, Energy Efficiency Directive with its accelerated decarbonisation of the public building stock at every level of government and public ownership, and the Energy Performance of Buildings Directive laying down that all new buildings will be zero-emission by 2030, organising the energy efficiency renovation of the worst performing public and private building stock by 2030, 2033 or 2035 according to building type as well as massive rooftop solar installation to even closer deadlines.

EVS 2025 has risen to this challenge as well. Building on the foresight of EVS 2020 which already instructed valuers to take account of legal deadlines and inflection points like sale or rental for energy efficiency renovation in their estimations of market value, the new Blue Book will set out a residual approach to doing so – because if you're going to instruct 70 000 valuers in 30+ countries to do something, it's helpful to tell them how. Put very simply, that means that when a valuer knows that the building will soon not be sellable or rentable unless it is renovated to a higher energy performance certificate level, the valuer will need to integrate the cost of that renovation into the estimation of market value. Nor will it always be a drag on value – the new CRR lays down that when real estate collateral is revalued, under certain circumstances energy performance improvements made since the original valuation can cause the property to be revalued upwards.

All this is a revolution. EU energy efficiency law for buildings has been around for twenty years, and successive Blue Books have documented this, but until 2020 the standards proper never instructed the valuer to do anything about it and until now, never indicated how. For years, the European authorities kept urging us to 'value energy efficiency' but we are a necessarily conservative profession – we balked at creating value for political purposes on markets where nothing indicated that energy efficiency renovation had a significant impact on value. It was only when the Green Deal legislated the mandatory transformation of the worst-performing building stock within tight deadlines that we finally recognised a market-changer that had to be taken into account.

There may soon be another Green Deal law with practical valuation impact. In Europe, the identification and risk assessment of contaminated sites is such a rare, time-consuming and specialist enterprise that their only place in valuation reports is usually in the disclaimer.

In the long run, the Soil Monitoring and Resilience Directive – still in the legislative pipeline – might change that, because its provisions – in particular on registers of contaminated sites and on a soil health certificate – may make it feasible to cover site contamination in valuation reports and integrate them into the process of estimating value.

Stay with me because it gets more complex and goes deeper than that.

The confluence of Banking Package and Green Deal

EU climate law is no longer a distinct and ringfenced environmental issue separate from the rest. Hardly surprising given the existential significance of climate warming. So in fact we now witness the 'greening' of the entire EU economy and society, nowhere more so than in the regulation and supervision of financial markets. The "Banking Package" is permeated by the Green Deal for the very good reason that *the safety and security of financial markets will not withstand failure to reach EU climate goals.* Thus the entire EU banking supervisory system has been reset to incorporate the climate goals.

"the safety and security of financial markets will not withstand failure to reach EU climate goals. Thus the entire EU banking supervisory system has been reset to incorporate the climate goals."

Under the new CRR, banks have a greatly enhanced obligation to report their exposures to environmental, social and governance (ESG) risks, obligations that are not always clearly enunciated due to a certain confusion over the exact nature of the components of E,S+G and the extent to which each letter applies to real estate.

There's been a lot of mirthful commentary about the vacuity of 'S' and 'G', but in fact there are many situations where all three letters are significant. Take the new Due Diligence Directive, for instance. Of course EU businesses should know and report not only whether the goods or components they import were manufactured to EU environmental standards, but also whether slave labour was used, etc. But for real estate, clearly the 'E' is dominant, and even then, careful with the content of 'E'. EU regulators and supervisory authorities push banks to go beyond energy efficiency in reporting their exposures to environmental risk – flood risk is an increasingly urgent matter. *But floods are a good example of the difficulties and limits of translating environmental concerns into value.* For instance, it is well documented that flooding does not systematically negatively impact value, especially over the medium term (I recommend the article on that in the June 2024 issue of EVJ). For valuation, the differentiating factor is regulation, usually national or sub-national regulation implementing EU law. A house that by law won't be sellable or rentable in a few years is a major valuation issue; a flood, or the risk of one, not necessarily so. The great challenge for our profession is to address climate issues without ever artificially creating or destroying value under political pressure.

Bottom line: Valuation, be it to a spot market value or to a longer term prudently conservative value requires recognisable, distinguishable market impacts. That doesn't mean that subcutaneously more isn't happening to transform the built environment and property markets: Real estate in all its aspects is now part of the EU Taxonomy with its associated reporting requirements for listed and large companies, we've seen that the new CRR is spooking banks with all its reporting requirements for exposures to ESG risks, and the Green Deal regulates the entire construction chain starting with construction products which used to be harmonised only for the needs of their modest cross-border flows but for which the latest Construction Products Regulation now lays down requirements for carbon-friendly building materials. Buildings are also at the heart of the Green Deal's life-cycle approach to circularity.

These phenomena are as EU law-based as the Directives mandating the rapid renovation of the building stock, but the difference is that, even though EVS mandates that valuers must be conscious of these phenomena as part of their general culture, the valuer cannot identify, isolate and quantify them in the process of estimating a building's value.

"The great challenge for our profession is to address climate issues without ever artificially creating or destroying value under political pressure."

"paradoxically, the energy efficiency component of a fully or near-fully decarbonised building stock has little or no value… in terms of policy other than classic financial regulation of real estate collateral, I would even speak of the 'de-Europeanisation' of property markets: once EU climate policy has burnt itself out by dint of its own success, we'll be back to 'location, location, location'…"

I would add that even the graspable and treatable part of climate valuation has short legs, in my view. I expect its relevance to peak within twelve to fifteen years and then rapidly decline because paradoxically, the energy efficiency component of a fully or near-fully decarbonised building stock has little or no value. And in terms of policy other than classic financial regulation of real estate collateral, I would even speak of the 'de-Europeanisation' of property markets: once EU climate policy has burnt itself out by dint of its own success, we'll be back to "location, location, location" and let's remember that the root of that word is 'locus'.

Same for housing policy. Most EU member states are suffering from an acute housing crisis messily linked to migration flows, the latter now being top-priority EU policy. Quite enough to start hearing calls for *"a common EU approach to housing"*.

Big mistake. Not for nothing did the Union's founding fathers and all their Treaty-enhancing successors exclude housing even from shared EU competence (which means the EU couldn't legislate or even 'recommend').

As soon as the initial enthusiasm for "the EU" to "do something" about housing affordability passed, all that would be left would be the question of why "Brussels" is messing with urban planning, rent control and social housing as well as outlawing divorce with a transition period for Protestant countries following an EU impact assessment and stakeholder consultation on the root cause of the housing shortage. Proponents of EU housing intervention are probably also thinking of EU financial support. That's just what we need! Another budgetary line for a low-budget Union!

EU policy beyond the Union

And what impact might all this have beyond Europe in a decreasingly multilateral world? A lot, actually, because although trade agreements are indeed in rapid decline, the unilateral imposition of EU rules is not. The EU is the world's top commercial power, the biggest importer and exporter, and when it makes adherence to EU rules the condition for accessing its market, the world falls into line. As Columbia Law professor Anu Bradford put it in her seminal book "The Brussels Effect":

"Today, few Americans are aware that EU regulations determine the default privacy settings of their iPhone or the type of speech that Twitter will delete as unacceptable. Americans are hardly alone in this regard. Examples of the EU's regulatory influence abound across global markets. EU laws determine how timber is harvested in Indonesia, how honey is produced in Brazil, what pesticides cocoa farmers use in Cameroon, what equipment is installed in dairy factories in China, what chemicals are incorporated in plastic toys in Japan, as well as how much privacy is afforded to internet users in Latin America." [1]

In this context, we've just seen that valuation practice is being forged by EU banking supervision and climate regulation. Financial institutions all over the world will come up against EU banking rules in many different ways. As for the European Green Deal, its regulation barring access to foreign products that don't meet EU climate and sustainability standards will impact the important global trade in construction products, but I expect the Green Deal's reach to go far beyond its coercive measures: EU climate and energy law has long been a magnet abroad; witness the way Norway long ago adopted the Energy Performance of Buildings Directive when nothing in the EEA Treaty obliged it to, or the way much of the world has been inspired by the EU Emissions Trading System – there is every reason to expect that extension of the ETS to buildings (and transport) will have the same global pull.

To conclude, even though essential aspects of real estate are and must remain national or sub-national, the former "real estate industry in Europe" has in my view become a "European real estate industry": Under the EU, free movement of real estate capital is a reality that has now spread to all types of buildings and investors. Construction cartels are fined and dismantled. The entire construction and investment chain is being decarbonised. The technology crucial to green and connected buildings is being protected and repatriated. The safety and security of financial institutions' real estate collateral is being reinforced and rendered sustainable, all of which has instilled a sense of European commonality in the valuation profession, which, like the EU legislator, puts its faith in European Valuation Standards and in a corps of Recognised European Valuers skilled and re-skilled to determine value in constantly evolving circumstances.

[1] "The Brussels Effect – How the European Union Rules the World", Anu Bradford, Oxford University Press 2020, p. xiv

EUROPEAN VALUATION STANDARDS 2025

#02 About EVS 2025

Cédric Perrière

About EVS 2025

An essential purpose of any new edition of EVS is to accompany market developments and regulatory changes. Since 2020, there have been significant transformations, especially as European Valuation Standards are designed in lock-step with EU law which has impacted valuation more than ever before.

These rapid and profound EU-led mutations explain the many new aspects of EVS 2025:

- *EVS 6 Valuation and Energy Efficiency now sets out in detail the methodology the valuer must follow to determine Market Value in an EU-legislated context of rapid mandatory renovation of the worst performing building stock. The essentially residual approach adopted has also been enhanced by a review of the residual methods in Part II Methodology.*

- *The revised Capital Requirements Regulation's valuation provisions – including a new 'property value' comprising 'prudently conservative valuation criteria' – are treated in depth in European Valuation Guidance Note (EVGN) 2 on Valuation for Mortgage Lending. For TEGOVA's 70 000 valuers from almost every EU Member State and candidate Member State, this will be the key tool for combining Market Value and 'property value' in our professionals' valuation of mortgage collateral.*
- *Agriculture has become a major economic and geopolitical concern leading to the return after twenty years of a Guidance Note (EVGN 4) on Valuation of Agricultural Property covering all aspects including climate change and technology and data.*
- *Part VI Valuation and Sustainability has undergone an in-depth revision and expansion to take account of the vast changes brought to land and buildings by the European Green Deal.*
- *Part X. European Union Legislation and Property Valuation comprehensively documents and explains the impact and professional significance of the most extensive EU legislative property and valuation production ever.*

Of course, another key purpose of EVS is to provide valuers with their essential practice tool in the most didactic manner and in a way that is also intelligible to clients and the authorities. The entire Blue Book has been reviewed to this effect but I would highlight in this regard:

- *The template reports for office property (EVGN 3.II) and agriculture (Annex to EVGN 4) complementing the highly successful EVS Valuation Report for Residential Property*
- *The Minimum Educational Requirements (Part IV)*
- *Valuing in Non-transparent Markets (EVIP 1)*

Sadly, Europe today is not only about advancing and securing the economy and the environment and promoting social progress; it is also the theatre of a terrible war. Since its inception, TEGOVA has helped Ukraine and our courageous Ukrainian colleagues in every way we could. In particular we responded to the request of the State Property Fund of Ukraine to provide guidance on the application of EVS to:

- *The assessment of war damage to individual properties and businesses in Ukraine, as is being undertaken by valuers for clients*
- *The assessment of the costs of post-war reconstruction*

Despite its Ukrainian origin, it is valid for all war situations and is now the first Guidance Note in these Standards.

Along with TEGOVA Chairman Krzysztof Grzesik, I wish to thank the members of the European Valuation Standards Board for their sterling work and in particular Jeremy Moody, Vice Chairman, for his extraordinary insight and effort and many groundbreaking contributions.

The European Valuation Standards Board and the TEGOVA leadership believe that EVS 2025 has squared the circle, putting valuation at the cutting edge of EU policy implementation with an unerring focus on rigorous evidence-based determination of value.

EVS 2025 is effective from 1 January 2025.

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Cédric Perrière REV MRICS
Chairman of the European Valuation Standards Board

#03 EVS 2025 AT A GLANCE

EVS 2025 AT A GLANCE • EUROPEAN VALUATION STANDARD 6

Valuation and energy efficiency

The Standard

A legal obligation to renovate a building to a higher level of energy efficiency by a fixed date or at a certain inflection point (*e.g. sale, rental, major renovation*) creates an unavoidable major cost that impacts Market Value, as the owner at that date or inflection point will have to pay for renovation works.

Valuers must be aware of these legal deadlines and inflection points and when they appear, must have regard to the cost of a renovation deep enough to meet the required new level of energy efficiency or future requirements that are sufficiently close to coming into force and consider the extent to which these costs affect the Market Value at the date of valuation.

These legal obligations to renovate stem from EU law and are imminent

- The European Green Deal is a package of binding EU legislation for the complete decarbonisation of the EU by 2050 and a 55% reduction in GHG emissions by 2030 compared to 1990 levels.
- A number of these EU laws target the building stock, the largest energy consumer (40%). and GHG emitter (36%).
- The obligations will prioritise the energy efficient renovation of the worst-performing building stock.
- New buildings must be zero-emission as of 01.01.2030 (*public buildings as of* 01.01.2028).
- Solar energy installations in all buildings except existing residential (*between* 2026 *and* 2030).
- The deadlines for the initial renovation obligations are so close (2030, 2033 *and* 2035) that they will cause a rapid transformation of real estate markets and Market Values.

How to determine market value

▸ THE COMPARATIVE METHOD:

If there is no statutory deadline or trigger point affecting legal rights of use or disposal of the subject building unless it is at a certain EPC class, for example, prohibition from selling, renting, donating or converting the building unless it is a certain EPC class, and if there is a sufficient number of sales transactions or listings involving similar properties not facing a statutory deadline, the valuer can determine the Market Value of the subject property using the comparative method. This approach can reflect the Market Value on the date of valuation without requiring an estimate of the renovation costs.

▸ THE RESIDUAL METHOD:

If there is a statutory deadline or trigger point affecting legal rights of use or disposal of the subject building unless it is at a certain EPC class, the valuer should in most circumstances use the residual method to determine the Market Value, proceeding as follows:

a. *Compare the building's EPC class with the class required by law at the next trigger point for that specific building.*

b. *Estimate the Market Value of the property on the special assumption that at the date of valuation it has been renovated to the required EPC class by comparing with similar properties at that EPC class.*

c. *Using the residual method, from the above end value obtain and deduct the cost of renovating to the required EPC class.*

d. *If appropriate, having regard to the scale of renovation and market practice, deduct other costs such as the cost of financing, professional fees and a developer's profit.*

For instructions specific to public buildings and to new buildings as well as for possible exempted buildings, see EVS 6.

EVS 2025 AT A GLANCE • VALUATION METHODOLOGY

The residual methods

1 ***The classic residual method***, sometimes called the 'static residual method', is used to arrive at the value of vacant land ripe for development, development in progress or of land and building/s with the potential for redevelopment or refurbishment. It assumes that the process of development, redevelopment or refurbishment is a business and, by adopting this assumption, it is possible to assess the Market Value of land or land and buildings in their existing form, reflecting development potential as a part of that process. The residual method is often also applied to measuring the feasibility of real estate development projects.

- This method is simple in concept but needs great skill and experience in application, as what appear to be minor changes to the assumptions made in carrying out the valuation can have major effects on the final answer.
- It comprises the estimation of the '***gross development value***' of the site or the buildings in a developed or redeveloped form, either by comparison or by the investment method. The valuer must take great care in applying the available evidence to establish the gross development value. The 'gross development value' is not a future value but the value of the property on the assumption that the development has been completed at the date of valuation. Thus it reflects market conditions as at date of valuation.
- The valuer must deduct from this 'gross development value' all costs that will be incurred in putting the property into the form that will command that value. These costs will include demolition of any existing buildings, design costs, infrastructure works, construction costs, professional fees, agency fees, costs required for the development to proceed and the costs of financing the development.

- It is common for a property development to be financed from external sources such as a bank loan. However, often a developer will borrow only part of the necessary amount and provide the rest as equity. In such circumstances the residual calculation should nevertheless reflect the 'opportunity cost' or forgone interest on the equity invested by the 'willing buyer'. This also applies to the financing, whether by bank loan or equity, of the cost of acquiring the property.

- A so called ***'developer's profit'*** must also be deducted from the gross development value. This is an allowance for the risk of undertaking the development. Developer's profit will either be expressed as a percentage of costs employed in a project, or a percentage of the gross development value, and percentages adopted will vary, depending on a variety of factors linked mainly to the risk inherent in the project and the letting and sale of the completed properties.

- When valuing a property in the course of development the valuer should adopt a developer's profit as a percentage of the remaining costs still to be incurred by the 'willing buyer' in order to complete the development. As development works progress, the percentage applied to remaining costs to arrive at the developer's profit may also diminish to reflect the reduced risk of a development nearing completion. It should be noted that the remaining costs of completing a development to a 'willing buyer' may be different to those budgeted by the existing owner of the property. Alternatively, developer's profit may be adopted as a percentage of gross development value. As the latter figure is typically stable over the construction period, *(unless market conditions change)* and does not change in line with the progress of development works, a valuer should manually adjust such percentage to reflect diminishing level of risk of a development approaching completion.

- Given that under the Market Value definition the valuer should assume a hypothetical sale of the property, all costs should be calculated from the 'willing buyer's" perspective at the date of valuation. Any existing contractual obligations between the current owner and contractors should be ignored.

- After deducting all the development costs and the developer's profit from the gross development value, the result is the residual value. The acquisition costs and the financial costs that result from the possession of the land during the construction period (*costs of the property purchase loan or opportunity costs*) should be deducted from the residual value to determine the Market Value of the property, so taking account of the time cost of money.

- As a valuation by means of residual method is sensitive to even minor changes in the assumptions employed in the valuation process, the valuer should test the result by at least benchmarking the obtained unit value with any known market data or by calculating the assessed Market Value as a proportion of the gross development value. In most markets, experienced valuers with good local knowledge will be aware of such proportions in order to gauge the accuracy of the residual calculation. Typically the better the location of the property, the higher the percentage.

- The analysis and judgments in the valuation must be explained in the report.

2 ***The alternative discounted cash flow method*** for valuing development property, sometimes called the 'dynamic residual method' is more explicit compared to the traditional (*static*) method in terms of timing of incomes and costs. This method also enables quantification of the internal rate of return. Inputs on the cost side are largely the same as for the traditional method including construction costs, professional and agency fees, the costs of financing the development and, if not reflected in the internal rate of return, developer's profit.

EVS 2025 AT A GLANCE • EUROPEAN VALUATION GUIDANCE NOTE (EVGN) 2

Valuation for mortgage lending - Prudently conservative valuation criteria

The revised EU Capital Requirements Regulation (CRR) will apply directly across the Union from 1 January 2025. It complements Market Value by a concept of 'property value' based on valuation using ***'prudently conservative valuation criteria'*** by which:

- *the value excludes expectations on price increases;*
- *the value is adjusted to take into account the potential for the current market value to be significantly above the value that would be sustainable over the life of the loan.*

► RATIO LEGIS:

At least as far as the valuation of bank collateral is concerned, the European authorities are no longer satisfied with a stand-alone 'Market Value' that they correctly view as a 'spot value' at the date of valuation. They want to 'secure the future' by excluding expected price increases and internalising the potential for future lower market prices/values.

The guidance note

The CRR lays down that in valuation according to 'prudently conservative valuation criteria', ***"the value excludes expectations on price increases"***. EVS 2025's EVGN 2 addresses the issues arising from this in the contexts of:

- *Valuation under the income approach.*
- *Using the direct capitalisation model.*
- *Valuations carried out by means of a DCF model.*
- *Treatment of rental increases.*
- *And the developer's profit in the residual method of valuation.*

The second CRR requirement for appraisal according to ‘prudently conservative valuation criteria’ is that ***“the value is adjusted to take into account the potential for the current Market Value to be significantly above the value that would be sustainable over the life of the loan”.***

► HERE EVGN 2 HIGHLIGHTS ISSUES OF:

- *Assessing the sustainability of the value over the life of the loan.*
- *The impact of oversupply of a particular type of property on prices and value.*
- *The impact on future value of declining population of a given locality and other negative factors changing the surroundings of the real estate.*

OTHER REAL ESTATE VALUATION

#04 The property valuation process – *Improvement suggestions*

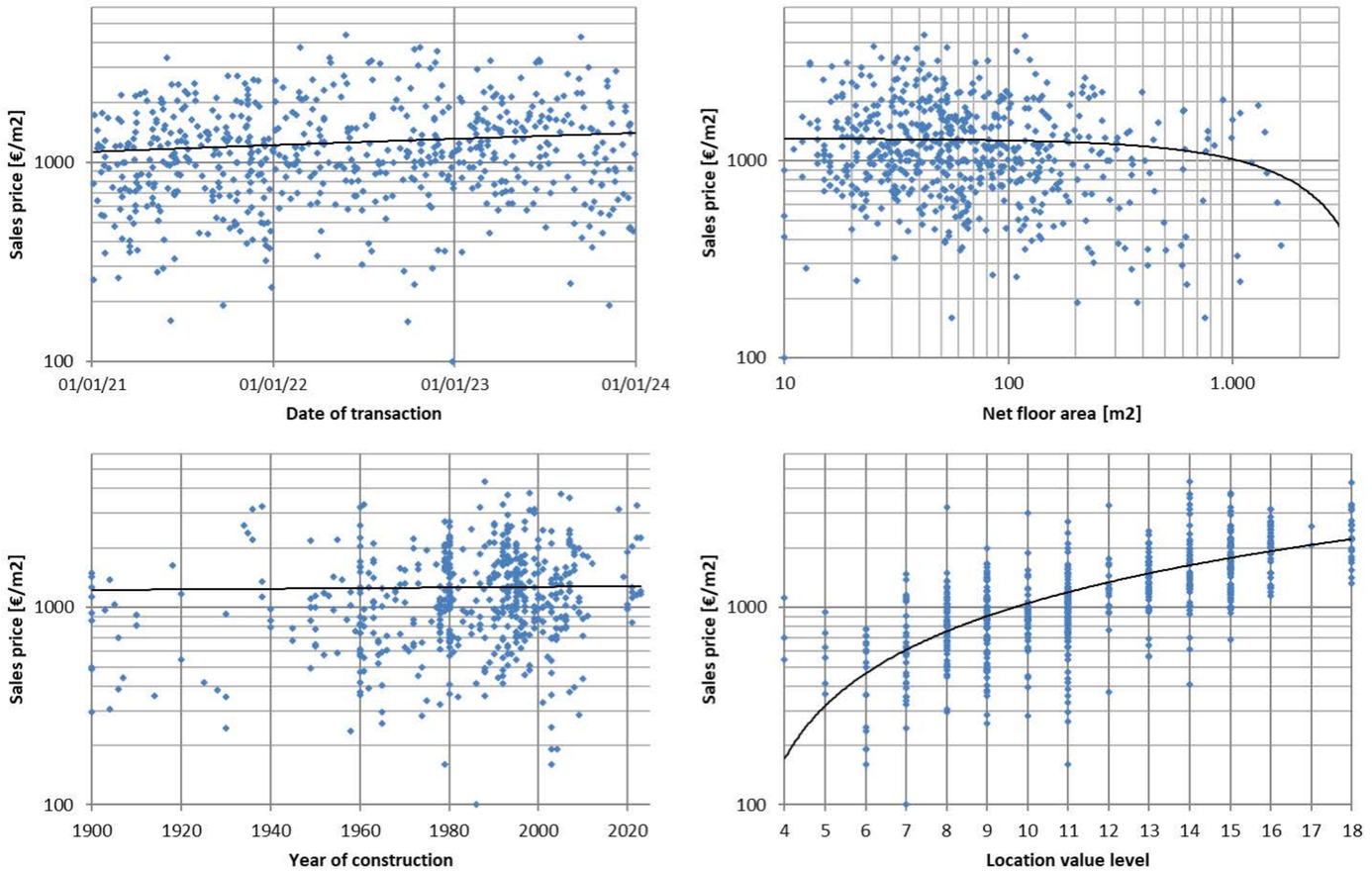
Boris Tuma

The paper shows how easy it is to manipulate real estate values while claiming to be compliant with valuation standards. Selecting the right set of comparable transactions seems to have by far the greatest impact on the valuation – but rules and recommendations on how to do this are lacking. Two main types of valuation error – Adjustment error and Missing data error are discussed. The research is based on real cases and factual available data which are generally incomplete and inaccurate. Suggestions are proposed on how to increase the quality and reliability of valuations. These suggestions could be used as a basis for amending valuation standards in future.

1. The challenge of value prediction

Property valuations are mainly based on market data from past comparable (sales or rent) transactions with similar properties. The estimated values therefore heavily depend on how comparable properties have been selected and how adjustments to these comparables have been made. Due to the diversity and heterogeneity of property, selecting the right comparables and making the right adjustments are two of the most challenging parts of every valuation process. Available comparable transactions, often unreliable and insufficiently documented, are diverse and have a wide distribution range. In various international and national valuation standards [1,2,3,4] there are only few or no rules on how to properly do that.

To illustrate this issue, the population of all recorded sales prices of transactions with office property in Slovenia in relation to various attributes (explanatory variables) is presented in Graph 1:



Graph 1: Sales prices per m^2 net floor area of 600 recorded office space transactions in Slovenia (market with 2 million inhabitants) sold on the open market in the last three years. The realised sales prices are presented in four graphs as a function of four explanatory variables or attributes, which are measurable and have a significant impact on the sales price: (1) date of transaction, (2) net floor area, (3) year of construction and (4) location of the sold office premises. The measure of the location quality is determined by so-called "value levels" used for mass valuation by the Surveying and Mapping Authority of the Republic of Slovenia. Value levels of office space in the capital Ljubljana range between 13 and 18. The sales prices (and net floor areas) are presented on a logarithmic scale in order to show a more even distribution. Source: Trgoskop – publicly available database of recorded real estate transactions in the Republic of Slovenia and own calculations. Sample size = 600.

Realised sales prices are very diverse. In order to try to understand the sales prices, a simple linear multiple regression model is implemented:

$$\ln Y = B_0 + B_1X_1 + B_2 \ln X_2 + B_3X_3 + B_4X_4 + \varepsilon_i \quad (1)$$

Y ... predicted value of the property (€/m²)

X_i ... explanatory variables (attributes):
1 - date of transaction,
2 - net floor area in m²,
3 - year of construction and
4 - locations of the sold office premises.

B_i ... partial regression coefficient

ε_i ... error terms

After solving equation (1) using available market data presented in Graph1 and using the least square method, we find that the model/equation (1) can explain only a limited part of the variance of sales prices: R-squared[1] for office space equals only 55%. Similar calculations have been made for other property types.

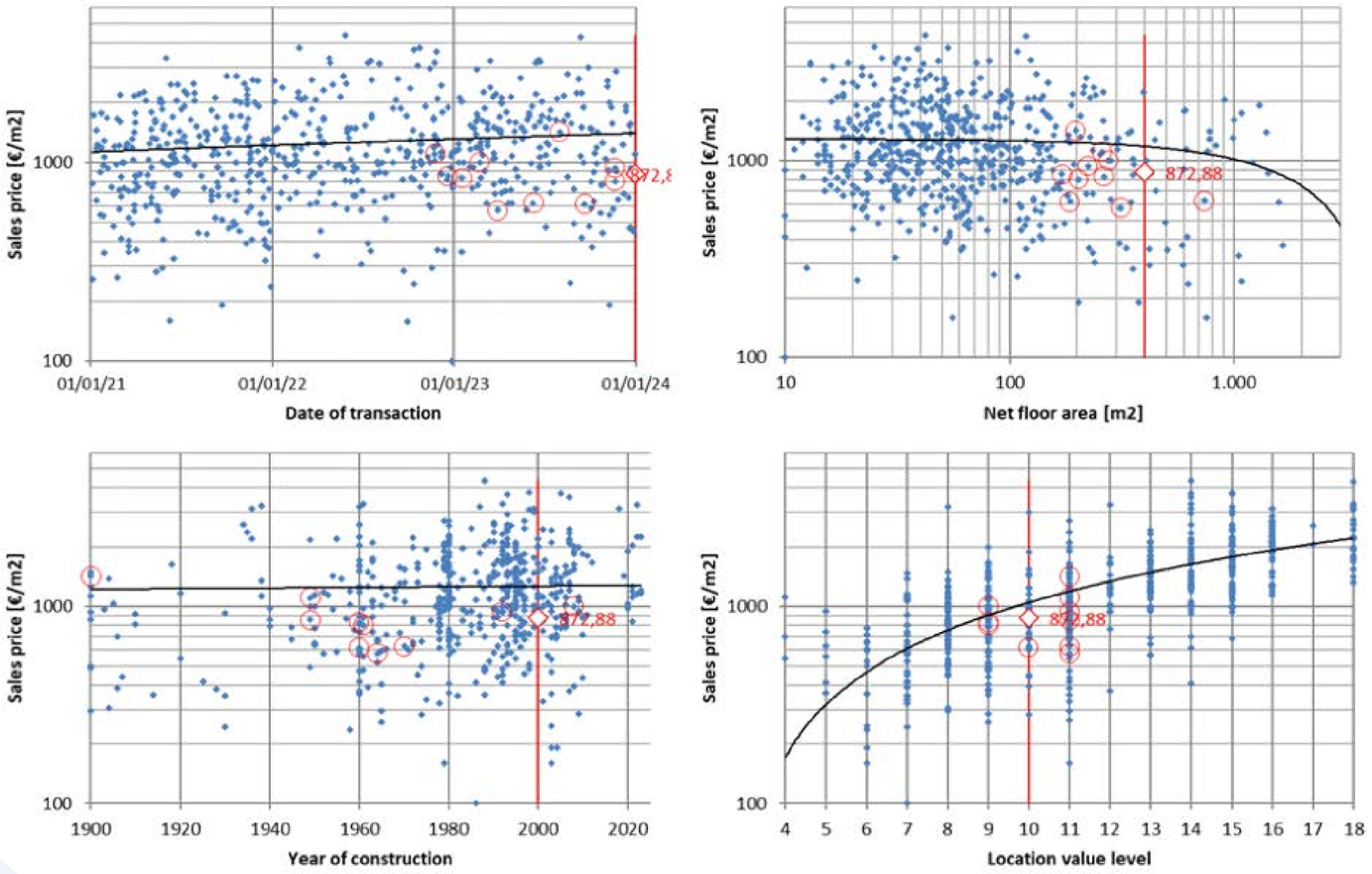
Years	Apartments 2022	Houses 2022	Office 2020-2022	Retail 2020-2022	Industry 2020-2022
SALES TRANSACTIONS					
R squared	**0,73**	**0,59**	0,55	0,50	0,32
Sample size	**4.723**	**2.093**	489	486	165
Median sales price €/m²	**1.974**	**914**	1.070	960	340

Table 1: R^2 values calculated using a basic linear regression model for different types of property. For residential property, transactions from the year 2022 have been used. For commercial real estate, due to less liquid markets, transactions from 2020 to 2022 have been used. Source: Data from Graph 1, own calculations.

R^2 values are obviously higher in more liquid residential markets than in less liquid markets like commercial property: 73% of the variance of the sales prices for apartments can be explained, while only 32% for industrial property in comparison. The remaining part of the price variance is extremely difficult or almost impossible to explain.

Other factors, such as special technical and/or legal characteristics of the property and/or special circumstances of the transaction, are rarely known to the valuer and can therefore not be appropriately taken into account in the valuation. The valuer might be aware of all technical and legal details of the subject of valuation, but won't be for comparable properties, for instance concerning construction standard, level of equipment at the moment of transaction, legal status, and transaction circumstances such as the bargaining power of the seller and/or buyer. Furthermore, missing and unreliable data contribute to the imprecision. Therefore, even when using advanced statistical models - like complex regression models – it is not possible to make a fully reliable estimation of value, especially for less actively traded property. Modifying model/equation (1) doesn't bring any major improvement of the model (in terms of higher R^2). This is also why automated valuation models might never be reliable enough, especially for less active markets. Thus, valuers are never in the position to fully explain or predict all prices or price deviations in the property market.

[1] R-squared (R^2 or the coefficient of determination) is the statistical measure in a regression model that determines the proportion of variance in the predicted variable that can be explained by the predictor variables. In other words, R-squared shows how well the data fit the regression model. R2 equals 1, if all variance can be explained and 0 if no variance can be explained by the predictor variables/model.



Graph 2:
Red vertical line: characteristics of the subject of valuation: date of valuation 31.12.2023, size 400 m², construction year 2000, location level = 10 (average location)
Red circles: 10 most similar comparables which require smallest adjustments - below 10% for each variable/attribute
Red square: average value of all adjusted comparables = estimated value of subject of valuation
Black line: trend
Sample size = 600

2. Comparable selection and adjustments

The selection of suitable comparables is crucial in every valuation process. For the purpose of this article, we show the valuation process for an imaginary subject of valuation (date of valuation 31.12.2023, office sp , size = 400 m², construction year = 2000, location level = 10 - average location, indicated by red vertical line in Graph 2) based on actual/real market transaction in Slovenia shown in Graph 1.

Valuation standards require selection of comparables that are most similar to the object of valuation in terms of property type, location, size, date of transaction, etc. [1]. Similarity/dissimilarity can be calculated in many ways [5]. For the purpose of the subject valuation process, we will select comparables which are most similar to the object of valuation in terms of lowest required adjustments. Adjustments are calculated based on partial regression coefficients B_1 calculated by multiple regression (equation 1), see Graph 2.

Adjustments are unfortunately always an important source of error in any valuation, regardless of how they are calculated or determined. This error is referred to here as Adjustment error or Error Type 1: a valuation error resulting from an incorrect value adjustment for differences between the comparable transaction and the subject asset, which are known to the valuer and can be measured and quantified.

In the presented case, all comparable sales transactions with partial adjustments below 10% have been selected. There were 10 such comparables. Surprisingly, the unadjusted as well as the adjusted values/sales prices of these 10 comparables vary widely, similar to sales price of the entire population of all 600 transactions. The coefficient of variation (Standard deviation divided by average value) in both cases (unadjusted and adjusted sales prices) equals 29%, compared to 55% for all recorded sales prices. By applying adjustments, the variation of sales prices cannot really be decreased.

	Total observed population of all sales prices	Unadjusted sales prices of comparables	Adjusted sales prices of comparables
Max. partial adjustments	n.a.	10%	10%
Population/Sample size	600	10	10
Average sales price	1.258€/m²	879 €/m²	873 €/m²
Min. sales price	100€/m²	575 €/m²	541 €/m²
Max. sales price	4.365 €/m²	1.426 €/m²	1.297€/m²
Cœfficient of variation	55%	29%	29%

Table 2: Sales prices/Values of total observed populations of sales prices and most similar comparables – unadjusted and adjusted.

The wide range of values (from 873 to 1.297 €/m²) is the result of previously mentioned unexplainable characteristics of every property and transaction which cannot be sufficiently quantified/measured. The less active the market, the wider the range and vice-versa.

To reconcile the final estimated value of the subject property, the valuer must first choose an appropriate sample of comparables and then calculate the final value equating to the average (or weighted average) of selected comparables. The appropriate number of comparables to be taken into account when reconciling the final value has been heavily discussed [6,7], but without a satisfying conclusion. Some of the possible reconciliation options are presented in Table 3:

Options to calculate the final estimated value for the subject property	Final estimated value
Average value of all 10 adjusted comparables	873 €/m²
Average value of 3 highest adjusted comparables	1.173 €/m²
Average value of 3 lowest adjusted comparables	592 €/m²
Value of the most similar adjusted comparable (least adjustments)	594 €/m²

Table 3: Possible outcomes of reconciled final estimated value of the subject of valuation – based on data Graph 2 and Table 2.

By using different combinations of most similar comparables, the valuer has the opportunity to come up with almost any estimated value. The valuer can choose for example 3 comparables with the highest values which will result in the final value of the subject property being 469.000 € (1.173 €/m² x 400 m²) or 237.000 € in case the lowest valued comparables are selected. Or anything in between. If the valuer decides to estimate the value solely on the most similar comparable, the estimated value would equal 238.000 € (594 €/m² x 400 m²). In all cases the valuer can argue that he/she used the most similar comparables. This seems to be the central problem in real estate valuation. Different valuers might value the same property differently depending on their personal perception of comparable selection. Even worse, biased valuers might, due to increased competition, manipulate the estimated value in order to meet client expectation (see section 5, Examples of inadequate and biased valuations). Such an approach can lead to serious mistrust in the valuation profession.

The reason for this wide spread of values is missing information about comparable transactions (addressed in section 1, The challenge of value prediction) such as unknown special features of comparable properties at time of transaction and/or unknown special circumstances of the comparable transactions. Missing information does not allow the valuer to correctly adjust the values for such differences which is the other important source of error in any valuation. This error is referred to here as Missing data error or Error Type 2: a valuation error resulting from missing value adjustments for differences between the comparable transaction and the subject asset, which are not known to the valuer and can't be measured or quantified.

"By using different combinations of most similar comparables, the valuer has the opportunity to come up with almost any estimated value."

3. Valuation error mitigation and valuation reliability

As mentioned above, any estimated value based on the market approach is subject to two main valuation errors: Adjustment error (Error Type 1) and Missing data error (Error Type 2).

In the valuation process, Adjustment errors can be omitted by selecting most similar transactions. More similar transactions will clearly result in less adjustments and thus smaller valuation error. Another effective way to eliminate Adjustment error is the use of the "Bracketing" principle – use of comparable properties that are both superior and inferior to the subject for a specific element of comparison (larger and smaller properties, older and newer, etc.) [8]. In order to satisfactorily offset Adjustment errors for each variable, a large number of comparables has to be used in the valuation process. On the other hand, however, every additional comparable is less similar to the subject of valuation and thus might increase Adjustment error (when bracketing is not applied correctly).

Adjustment error can be a serious problem when valuing properties with characteristics rarely traded on the market: very large properties, properties in remote areas, very old properties, ... where bracketing cannot be applied and adjustments must be large and cause major inaccuracy.

The second type of error – Missing data error – is a result of unknown and unmeasurable effects on property prices. This type of error is rarely mentioned and largely ignored. The best way to avoid this type of error seems to be to increase the number of comparables and thereby reduce statistical error by choosing a balanced and unbiased selection of most suitable comparables and avoiding statistical outliers. This error can also be easily hidden, as the valuer can simply showcase only comparables of her/his choice, whilst others which might also be relevant to the calculation are not disclosed. The valuer should therefore explain why certain comparables have been selected and why others have not.

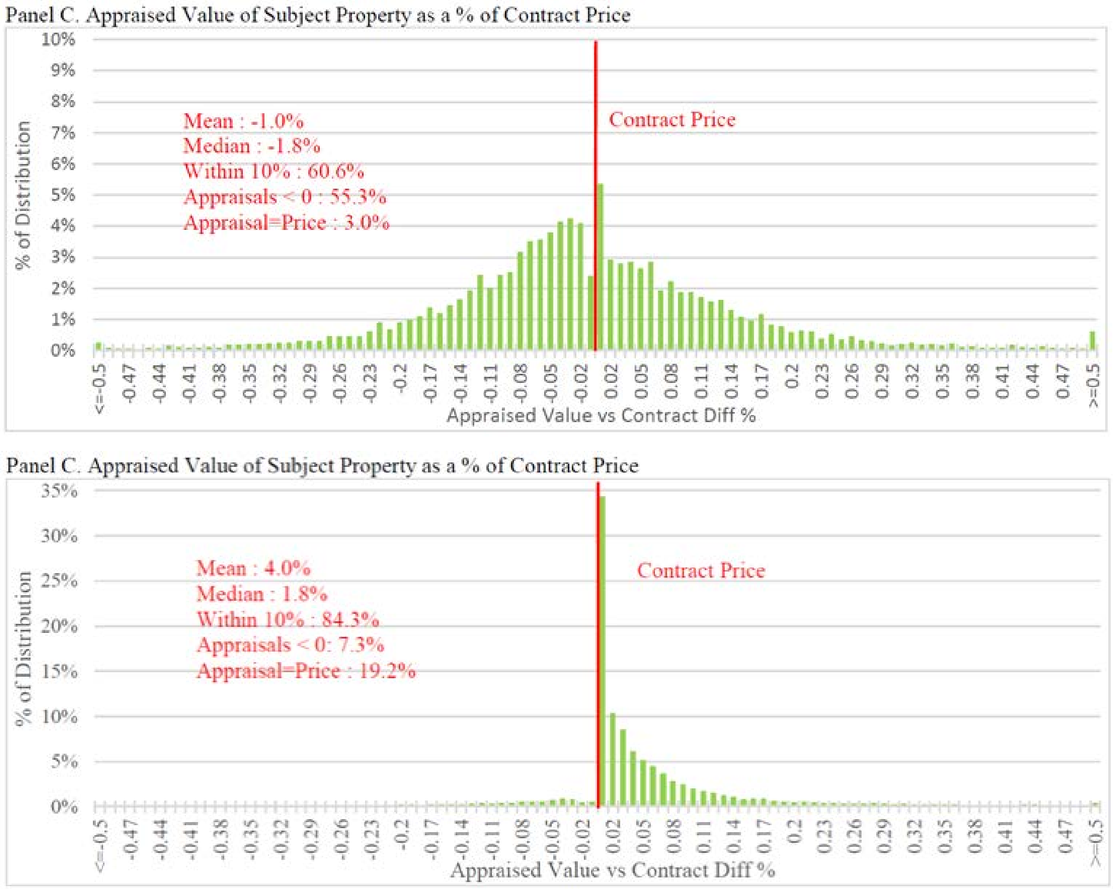
Prioritising only comparables with lowest Adjustment error can be very misleading, because such comparables might be subject to high Missing data error. For example, a property which is very similar to the subject of valuation in terms of known attributes might have been sold for a very high/low price due to special circumstances not known to the valuer. Relying too much on comparables with small adjustments could therefore be incorrect and misleading.

"Prioritising only comparables with lowest Adjustment error can be very misleading, because such comparables might be subject to high Missing data error."

Completely eliminating both types of error will most probably never be possible, but the user of the valuation should be informed accordingly. For example, the magnitude of both types of valuation error for an apartment in a neighbourhood with plenty of comparable transactions is much lower than for a large industrial site in a remote area or of a special/specific property. Therefore, the extent of both types of errors or reliability of the valuation should be disclosed by the valuer. A useful measure of Adjustment error might be the average adjustment used in the valuation process. A useful measure of the Missing data error might be the standard deviation or confidence interval of values of all selected comparables. A basic understanding of the valuation reliability and valuation errors is key to understanding the valuation itself.

4. Examples of inadequate and biased valuations

An instructive example [9] of inadequate valuation processes and valuation bias is presented below, where residential properties in the U.S. were valued by the same valuers twice within a 6 month time period between 2012 and 2015: in the first round the valuers were not informed of the contract price – valuations were commissioned to assist the foreclosure process – and in the second round the valuers were informed of the contract price – valuations were commissioned in the loan origination process:

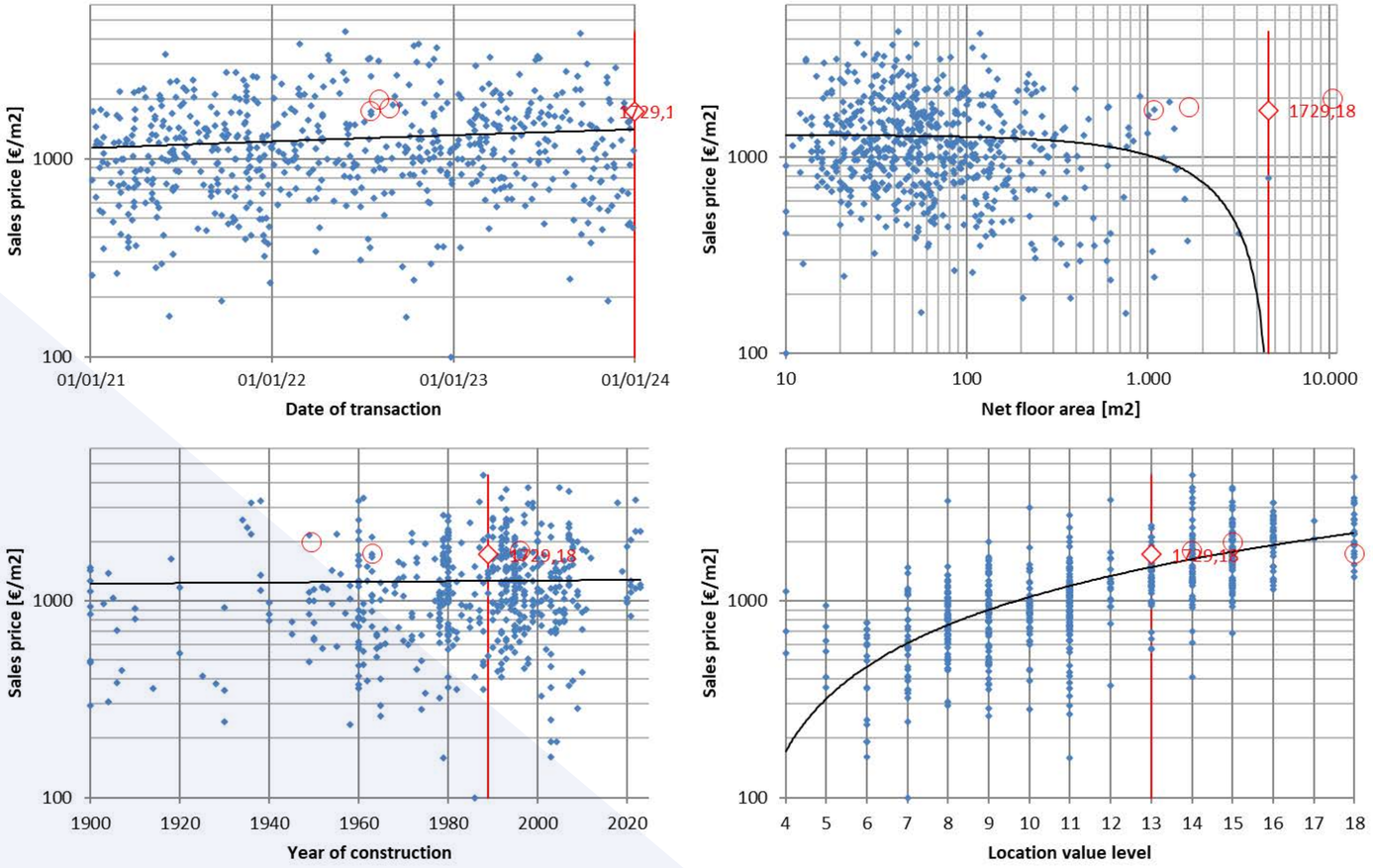


Graph 3: Distribution of the difference between appraised value and contract values. In the first case the contract price was not known to the valuer, in the second case the contract price was known in advance. Sample size = 8.533

The difference is evident: the second time the valuers clearly applied different valuation assumptions and used different samples of comparables and different price adjustments to estimate the values. When the contract price was known to the valuer, in one third of all cases the indicative value exactly matched the contract price and more than 95% of the valuations "confirmed" the contract price (equal to or higher than the contract price). Application of this paper's recommendations would most probably avoid such an outcome.

In the second example a valuation of an office building in Slovenia was analysed, Graph 4 [10]: Office building in outskirts of Ljubljana, net area 4.600 m^2, built in 1989 abandoned and in bad condition. Here the same input data apply as presented in Graph 1. Because almost no transactions of that size were recorded, very reliable comparables were not available. Comparables were selected subjectively without any justifications and explanation, none of the findings of this paper was taken into account. How adjustments were calculated was not disclosed, the number of comparables was low. The valuer selected three comparables: one transaction of an office building in Central business district of Ljubljana and two transactions of non-office properties. The valuer did not mention low reliability and the high risk of valuation error.

It is clear that the valuation was biased and highly overpriced (1.729,18 €/m²). The poorly documented valuation process also made it impossible for the user to verify the credibility and plausibility of the valuation. The subject property was finally sold to the Republic of Slovenia for the assessed price, funded with taxpayers' money, and the minister in charge had to resign. The valuer stated that the report had been prepared in compliance with International Valuation Standards IVS, which was most probably true.



Graph 4: Red vertical line: characteristics of the subject of valuation: date of valuation 1.1.2024, size 4.600 m2, construction year 1989, location level = 13 (below average location for capital)
Red circles: 3 selected comparables. Criteria of selection not documented.
Two selected comparables are not office buildings.
Red square: average value of all adjusted comparables = estimated value for subject of valuation
Black line: trend
Sample size = 600

5. Improvement suggestions

Based on the findings above certain improvements in the property valuation process are proposed.

Despite higher data availability and increased computing power, valuation standards haven't adapted much to the new environment. They seem to focus more on form and content of the valuation than on the accuracy and reliability of the valuation process itself. Another drawback of valuation standards is an insufficient traceability for users of valuation reports, who are often not able to understand where the data came from, how and why it has been used and how the estimated value has been derived. The focus of the proposed changes lies mainly on comparable selection, because it has by far the biggest impact on every estimated value.

a. Strict disclosure of the used population of transactions

Before a relevant suitable sample of comparable transactions is identified and used to value a property, the valuer should first identify and analyse all market transactions of the entire relevant market segment (or transaction population). This market segment or population should consist of transactions which have characteristics similar to the subject property. A suitable market segment for valuing an office property could be all transactions of office property sold in a specific region(s), within the last two/three years. The number of considered transactions should be large enough (recommended at least 100) not to leave out any relevant comparables and to allow for performance of an adequate statistical analysis. Due to continuous growth of various available data sources, that shouldn't be a problem. The reasoning of how the population was identified must be disclosed.

Providing some basic statistics on the selected population provides valuable information and better understanding of the market segment and valuation process. Such statistics might include: average/median, standard deviations, percentiles etc. of transaction prices and other characteristics of properties. A graphical presentation of the population and its characteristics, such as presented in Graph 2, is even more informative. High and unexplained deviations of the estimated values from the population average/median may be an indication of an improper and flawed valuation process – also easily recognisable by the user.

b. Clear disclosure of the comparable selection process

Valuation standards do not sufficiently specify how comparables should be selected. Only general rules are suggested, such as "evidence of several transactions is generally preferable to a single transaction or event" or "evidence of very similar assets provides a better indication of value than assets where the transaction prices require significant adjustments" [1]. However, as shown earlier, transaction prices of many similar-appearing properties might, due to Missing data error, vary significantly.

Valuers should therefore clearly disclose how and why specific comparables in the valuation process have been selected, and in some special cases, why others have not. The reasons for the selection should be documented. Valuers should preferably:

(1) Choose comparables which are most similar to the subject of valuation, e.g. in terms of smallest adjustments

(2) Choose a well-balanced sample of comparables, e.g. by applying the "bracketing" principle

(3) Avoid comparables with extreme/outstanding transaction values (statistical outliers) which should not be used without sufficient justification

(4) Select a higher number of comparables than usual practice in order to decrease statistical error. We recommend 10

Proposals (1) and (2) can effectively reduce Adjustment error, while proposals (3) and (4) and partly (2) can effectively reduce Missing data error. A valuer following no rules is free to subjectively choose from a wide range of different comparables and thus, with a little creativity, fabricate almost any arbitrary estimation of value covered by the near impossibility for the user of the valuation report to detect any flaws or bias in the valuation process.

c. Additional disclosure of valuation reliability and valuation errors

As mentioned above, the quality and reliability of different property valuations can vary widely depending on the characteristics and tradability of properties and the valuer should address this in the report in a basic reliability and error assessment analysis. Reliability can be expressed either descriptively or numerically. It should be emphasised that the valuer cannot be held accountable for the reliability of the valuation if there is not enough reliable data (comparables) available. The valuation report should be prepared in a such a way that even a non-expert can understand the valuation process and self-check the plausibility of the valuation.

Application of these recommendations would most probably avoid the outcomes described in section 4.

"valuation standards… seem to focus more on form and content of the valuation than on the accuracy and reliability of the valuation process itself."

6. References

[1] International Valuation Standards Council: International Valuation Standards (IVS), www.ivsc.org

[2] RICS Valuation – Global Standards, www.rics.org/standards

[3] The European Group of Valuers' Associations (TEGOVA): European Valuation Standards, www.tegova.org

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[9] Michael D. Eriksen, Hamilton B. Fout, Mark Palim, Eric Rosenblatt: Contract Price Confirmation Bias: Evidence From Repeat Appraisals. Fannie Mae, October 28, 2016

[10] Valuation report, Office building Litijska cesta 51, Ljubljana, 2023.

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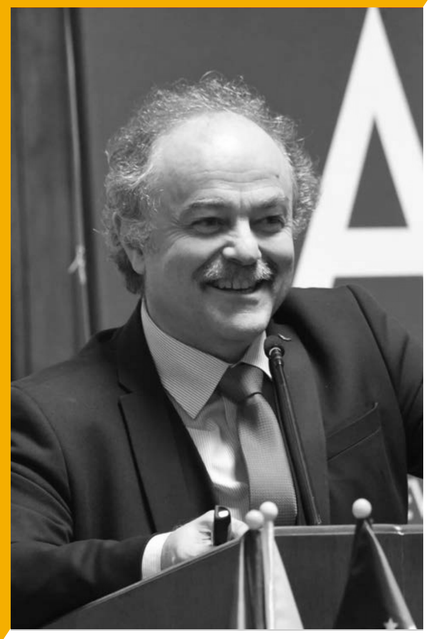
BUSINESS VALUATION

#05 Impact of the war in Ukraine on the value of businesses



Daniel Manațe

This article first explores the concept of disruption, specifically war, contemplating some of the destructive effects on political and social structures, countries, industries, infrastructure, environment or migration and refugees. It then identifies guidance in European Valuation Standards on how to deal with the uncertainty brought by war in Ukraine in the valuation of European businesses or of specialised trading property such as shopping centres, hotels or touristic resorts located in Europe.

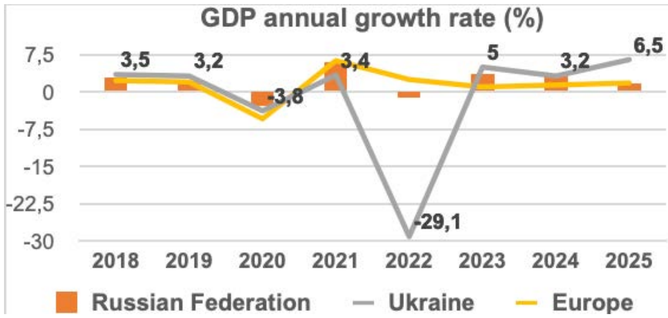
Finally, it reviews the processes for assessing the war's impact in valuation reports, identifying pertinent sources of information, and ultimately recommending techniques to be employed within the valuation process.

Disruption. What is it about?

Disruption is a substantial disturbance or interruption that results in a change in the conventional manner of conducting business. It is applicable to a variety of contexts, such as technology, commerce, society, or even natural phenomena. Be it in a process, market, industry, or environment, disruption frequently results in significant changes.

War constitutes a profound and devastating form of disruption, undermining nearly all facets of society: political, economic, social, and cultural. The ramifications of war can be both immediate and enduring, resulting in extensive destruction as well as, in certain instances, significant societal transformations or innovations.

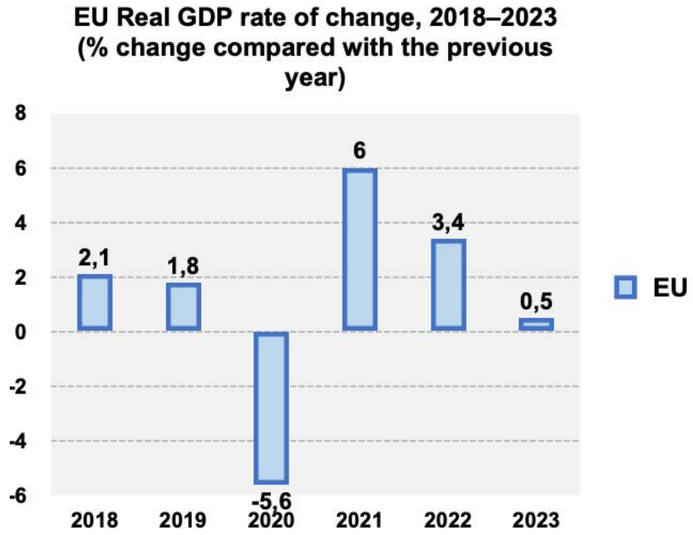
Let us consider some of the economic disruptions induced by the war in Ukraine, starting with the countries engaged in the conflict. We see the huge impact on Ukrainian GDP in the first year of war. The Russian Federation (RF) also registered a steep contraction in 2022, but significantly lower, and we can see the forecasted negative effect in 2025 and 2026 due mainly to the international economic sanctions and the war effort.



Source: data from IMF Data Mapper

For Europe, we note the slowdown induced by energy and other industrial raw materials disruptions, such as Russian gas, oil or coal, with high impact on dependent industries (e.g. chemical) and countries (e.g. Finland, Poland, Bulgaria, Hungary, Germany and so on).

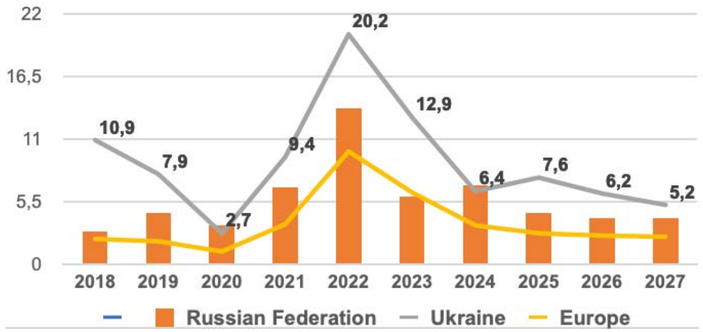
The next graph shows the aggregated effect on the EU real GDP rate of annual % change, aggravated in 2023 due to the prolongation of the war.



Source: Eurostat (online data codes: naida_10_gdp and nama_10_gdp)

During the first two years of war, Ukraine was heavily hit by inflation. On a smaller scale, we see the same impact on RF and on all Europe. The IMF forecasts for 2025 – 2027 place Ukraine above RF or Europe, but the gap is expected to narrow toward the end of this period.

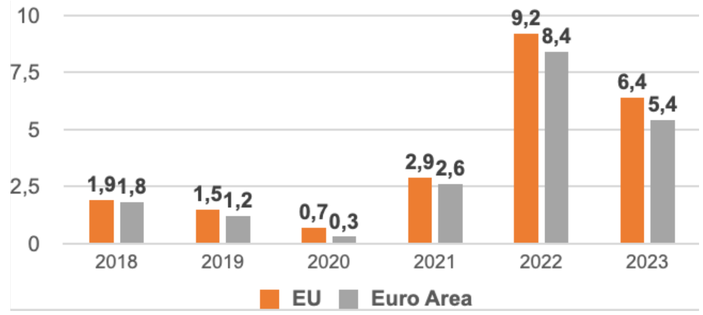
Annual average inflation rates



Source: IMF Data Mapper

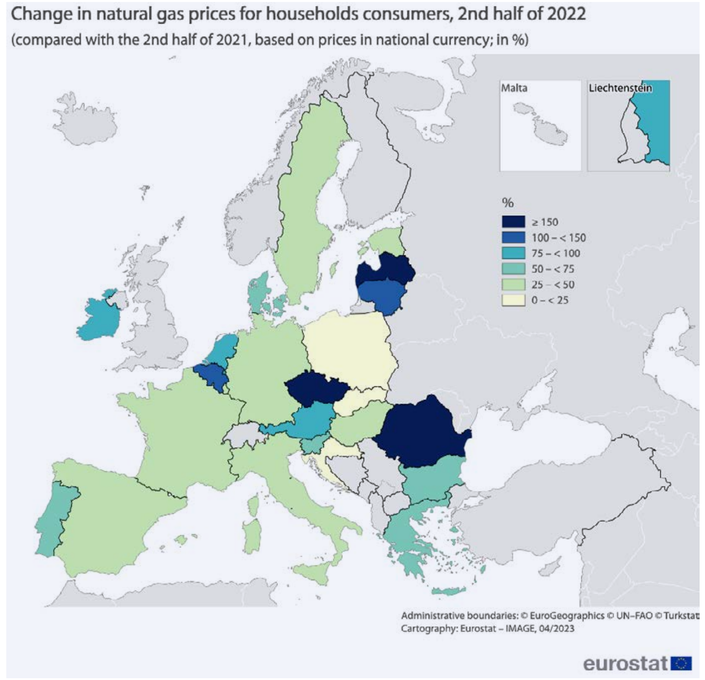
The EU and Euro Area suffered a huge inflation impact in 2022, with an over 300% rise compared with 2021, still lingering in 2023, with an over 200% rise versus 2021.

Annual average inflation rates



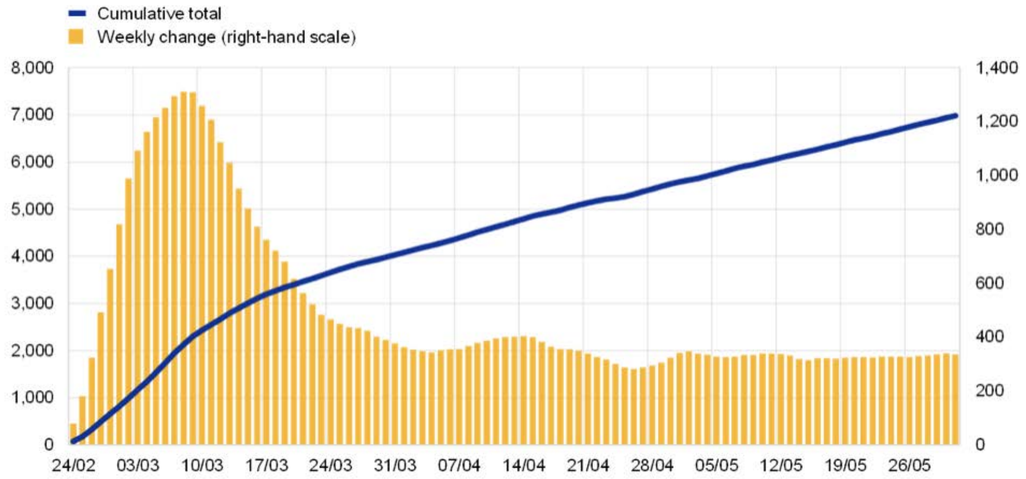
Source: Eurostat

Finally, we note the significant increase in natural gas prices for household consumers, the worst impact being for Romania, Czech Republic, Latvia, Lithuania or Belgium:



The huge number of Ukrainian refugees could substantially impact labour conditions and context in certain host countries. This aspect should be considered carefully by the valuer, especially in industries that could be particularly affected by this trend.

The latest figures (September 2024) indicate that more than 6 million refugees from Ukraine have been documented throughout Europe, alongside an estimated 8 million individuals displaced internally within the country by late May 2022. The next graph captures the explosive situation in May 2022[1]:



Sources: UNHCR and ECB calculations

Different statistics regarding European countries hosting Ukrainian refugees include Poland (around 1,42 million, Germany (around 1 million), Czech Republic (around 442 000) and so on. Other countries that accommodated more than 100 000 Ukrainians are: Italy, Spain, UK, Romania and France. Ninety percent of Ukrainian refugees are women and children, whereas the majority of Ukrainian men aged 18 to 60 are barred from leaving the country. The OECD forecasts that 1.2 million Ukrainian immigrants will eventually assimilate into the European job market, primarily in service roles.

Host nations are improving the integration of Ukrainian refugees into their labour markets in various ways, addressing skills gaps and meeting pressing workforce needs. Several countries have removed specific entry barriers to Ukrainian refugee engagement in vocational training and adult education.

The European Union has granted temporary protection to Ukrainian refugees, providing immediate assistance and access to the employment market.

Governments are offering language training and initiatives are being implemented to acknowledge the qualifications and competencies of Ukrainian refugees, enabling enhanced engagement in the job market.

"TEGOVA's European Business Valuation Standards (EBVS) offer guidance on how to deal with uncertainty induced by disruption, including war"

Valuation uncertainty. Seeking guidance in European Business Valuation Standards

TEGOVA's European Business Valuation Standards (EBVS) offer guidance on how to deal with uncertainty induced by disruption, including war:

*"Systematic Risk is the risk that is common to all securities and cannot be eliminated through diversification. Since this kind of risk involves the broad economy, such as recession, high inflation, **war**, etc., it cannot be avoided by investing in a diversified portfolio of stocks."* EBVGN 2 Discount Rates in the Discounted Cash Flow Method, paragraph 3.4

*"Research shows that ERP[2] follows the business cycle. The ERP can be calculated as a long-term average over the business cycle or based on current stock market levels. The reason for relying on long term data is better stability of returns over such period, including effects of extraordinary events (economic crisis, **world war**, recession, etc.) and more accurate calculations due to more numerous observations."* EBVGN 2, par. 4.4.4.

1 https://www.ecb.europa.eu/press/economic-bulletin/focus/2022/html/ecb.ebbox202204_03~c9ddc08308.en.html

2 Equity risk premium

"EBVS specifically mentions two instruments to handle uncertainty in valuation: sensibility analysis and scenario analysis."

Next, two specific provisions in EBVS 4 Reporting the Valuation that require valuers to refer to special issues related to uncertainty and to report and comment them to the client:

"3.2.3. Special issues – In some cases it may be necessary to refer to the special issues which would usually have been recorded within the terms of engagement:

> *...*
>
> *Any unusual market conditions at the specified date of valuation and whether any* ***valuation uncertainty*** *relating to the projections or market conditions, or other specified factors has been taken into account or ignored in reaching an opinion of value."*

"3.2.5. Where the market for the business being valued is affected by unusual uncertainty and this is relevant to the valuation, valuers must proceed with caution, comment on the issue to the client and make appropriate statements in their Reports."

As the valuation process requires more specific guidance, EBVS specifically mentions two instruments to handle uncertainty in valuation: sensibility analysis and scenario analysis.

In this respect, EBVS 3 The Valuation Approaches and Methods covers methodology, and explains the final use of sensitivity analysis, that would be to test the DCF result:

"Depending on the specific circumstances and uncertainties related to the subject business, industry and economy, ***the sensitivity analysis may be applied to test the DCF result, which shows how much the valuation result*** *will change depending on the change of key assumptions used in the projections (for example, change of growth rate, margins, discount rate, residual growth, etc.)."* EBVS 3, par. 6.3.1.13.

Going even deeper:

"The sensitivity analysis and development of several cash flow scenarios ***identify the specific risk factors*** *that contribute the most to the overall risk. ...*

... Each risk factor should be ***quantified*** *and comprehensively* ***analysed****. Finally, the sensitivity analysis should integrate the probability attached to risk factors and variables derived, inter alia, from evaluation of the business history, systematic and structural elements."* EBVS 3, par. 6.3.1.15

Finally, EBVS 4 Reporting the Valuation concludes that sensitivity analysis should be applied in the income approach when uncertainty is detected:

"... Valuation uncertainty – In those cases where there is a high level of uncertainty about the future development and projections or discount rates or other key facts, which are relevant for the income approach, the valuer must explain the assumptions related to the uncertainty and ***apply the sensitivity analysis*** *if the final value is based on the income approach."* EBVS 4, par. 3.2.2.8

Scenario analysis is a useful tool in business valuation, especially when uncertainty is unleashed by powerful disruptions such as war. Guidance on this instrument is provided in EBVGN 2 Discount Rates in the Discounted Cash Flow Method:

"The projected cash flows are normally considered to be less risky if they are contractually based or projected as the most likely cash flow. Alternately, it is possible to reflect various levels of uncertainty by ***projecting different future scenarios*** *and then* ***deriving the probability-weighted cash flows.*** *The valuer should determine an* ***appropriate discount rate*** *and make* ***adjustments for additional risks or uncertainty*** *if necessary, depending on the type of projected cash flow used in applying the DCF method in business valuation."* EBVGN 2, par. 3.6.

For better assistance, paragraph 3.5. of the same standard warns the valuer against double counting the appropriate adjustments:

"The projection of future cash flows always includes a certain level of uncertainty in terms of amount, growth, timing, etc. Either reflect risks in the projected cash flows, or alternatively, express the additional risk by adjusting the market-based discount rate." EBVGN 2, par. 3.5.

Lastly, in EBVS 2 The Valuation Process, if scenario analysis is to be used in the valuation report, then the valuer must agree on this with the client:

"The scope and extent of the investigation to be undertaken by the valuer shall be clearly set out. The following shall be included:

...

Development and analysis of several scenarios of cash-flow projections, if applicable and ***agreed with the client****..."* EBVS 2, par.5.8 "Scope and extent of investigations".

Valuation process. How to approach uncertainty in business valuation

Apart from major market disturbances reviewed above, two further main factors can trigger uncertainty in business valuation or in valuation of specialised trading property: (un)availability of valid entry data for valuations and valuation method or model.

The (un)availability of valid entry data for valuations comprises lack of relevant, recent, or credible entry data needed in the valuation process. Also, the current increased volatility of markets, as with prices of some raw materials and energy, may put pressure on the readiness of valid entry data. All these complexities may cause informational asymmetry between the client, the intended user and the valuer or different valuers with the same valuation subject.

Inappropriate or incorrect choices among the many valuation models available can be a source of uncertainty.

The business model of modern enterprises enables managers to take decisive measures in companies and across industries to enhance opportunities or avoid risks. Over the last decade, management flexibility has increasingly been considered a factor of uncertainty.

While sensitivity and scenario analysis are established tools for dealing with uncertainty in valuation, in businesses with managerial flexibility and multiple options for action in the explicit forecast period, the real options model can successfully complement the valuer's arsenal. It is appropriate for the valuer to also consider the behaviour of the competition / especially new entrants, innovations of new industry leaders, the high flexibility of major competitors. All that can generate major disturbances in traditional business models.

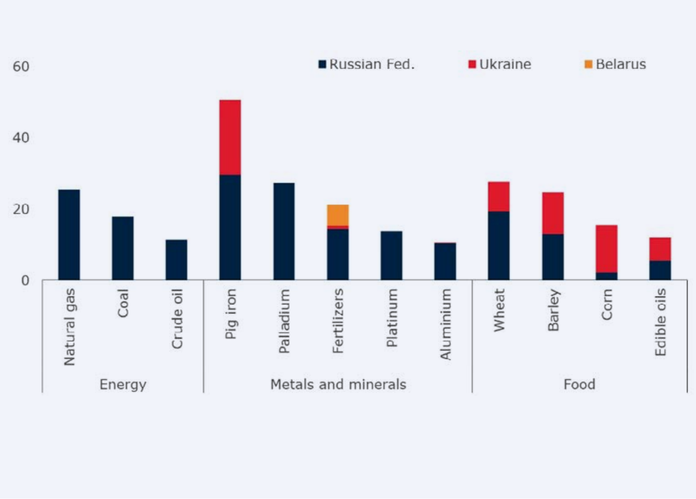
The path to follow in the valuation process to accurately deal with the uncertainty of war can be gleaned by considering the war in Ukraine and its impact on the value of businesses.

The first step is to identify all relevant parties in the conflict, and the extent of their capacity to disrupt European and global markets through imports & exports or the potential to generate supply bottlenecks; in this case, Ukraine, Russian Federation (RF) and Belarus[3].

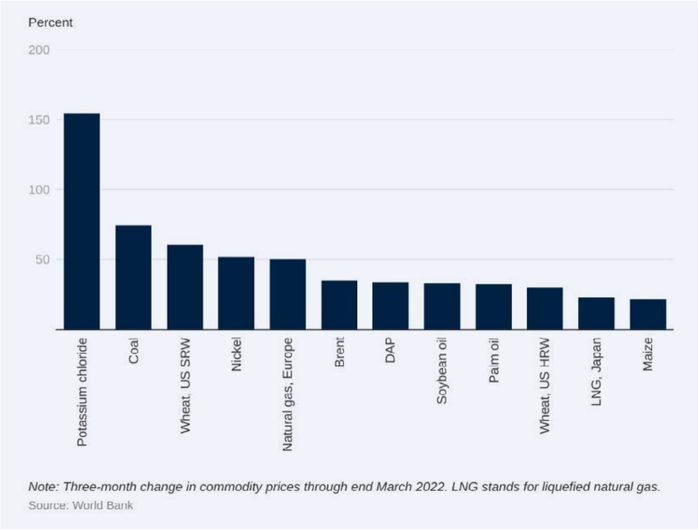
The next graph[4] tackles three main categories of supplies provided by those three countries: energy, food and metals & minerals, all being potential candidates for supply disruptions either due to the war itself (Ukraine) or to economic sanctions (RF & Belarus).

Would such bottlenecks affect the potential market and/or the supply chain of the company subject to valuation?

The second graph[4] captures the surge in commodities prices in March 2022, only a month after the commencement of hostilities.



Commodity price changes in March 2022



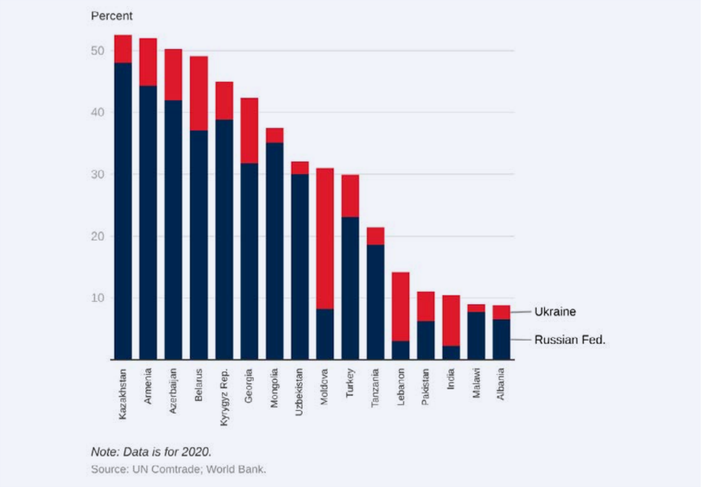
Source: World Bank

Secondly, we should consider how the response and countermeasures of parties uninvolved directly in the conflict will impact the specific markets and industries of the subject company. Such responses could be economic sanctions, embargo or the shaping of new international deals aiming to change previous suppliers of energy or raw materials, or other products with different suppliers or substitution products.

The next part of the analysis should focus on the cascade of influences:

- Countries impacted: client & supplier countries (+/-);
- Industries obstructed (+/-);
- Companies influenced (+/-).

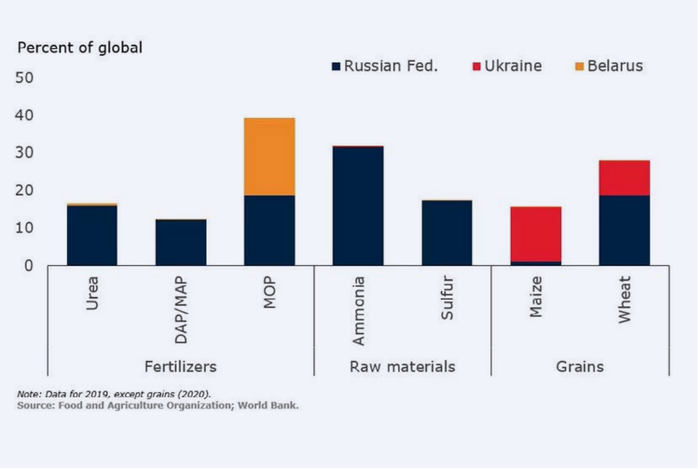
The next graph[4] exemplifies the countries severely impacted due to high dependence on RF and Ukrainian food imports (data on the dependencies is from 2020, but at the start of the war the differences were minimal):



Source: World Bank

In a deeper investigation of the heavily affected food industry, fertilizers become an issue (e.g. urea) as well as raw materials such as ammonia, or grains (e.g. maize, wheat). See graph below:

RF, Belarus and Ukraine exports



Source: World Bank

[3] https://www.diplomatie.gouv.fr/en/country-files/ukraine/situation-in-ukraine-what-is/imposing-sanctions-against-russia-and-belarus/

[4] https://blogs.worldbank.org/en/developmenttalk/commodity-prices-surge-due-war-ukraine

For a structured approach, we should divide the influences into first and second order industries obstructed, see the model below[5]:

Industries impacted: **Food** (e.g. RF accounts for 17% of potassium chloride fertilizer, 25% of chemical & mineral fertilizers and 14% of cereals – wheat & meslin; Ukraine accounts for 10% of cereals – wheat & meslin; Belarus for 17% of potassium chloride fertilizer)

- First order impact:

  Shortages of Wheat / Sunflower / Corn leading to rising prices and pressures to change suppliers

  Sunflower shortages inducing Soy & Meat price rises (sunflower being a major animal feed component)

- Second order impact:

  Increased production in Substitution goods (see Michael Porter Five Forces Model in the synthetic model for the complete analysis below)

  Protectionist food policies (ex. Hungary & Turkey increased export controls)

This model could be applied to any other primary industry / energy or raw material impacted by the war disruptions. See the model for Nickel:

Raw material impacted: **Nickel** (e.g. RF accounts for around 20% of global exports)

- First order impact:

  Stainless steel (imports needed, shortages)

- Second order impact

  Chemical, Automotive, Food & Beverage: increased competition for secondary supply (see Michael Porter Five Forces Model in the synthetic model for the complete analysis below)

Finally, for the benefit of scenario analysis we should also consider the dimension of the conflict:

- Time: length of the conflict
- Impact scale of military conflict
- Escalation v Containment v Peace

Based on this research, we can finalise the fundamental analysis providing all the intelligence to be directly used in valuation approaches and methods. We provide next a synthetic model for the complete analyses (STEEP & SWOT[6]):

Macro:

- GDP growth rate
- Inflation rate
- Interest market rate
- Unemployment rate
- Risk free rate
- Equity risk premium
- Country risk…

War effects on Industries:

- Michael Porter Five Forces Model:

  The intensity of existing competition between companies in the respective sector

  The threat presented by potential competitors attracted by the prospects of the respective field

  The bargaining power of suppliers

  The bargaining power of clients

  The threat presented by substitute products

- Value added chain (upstream - downstream)
- Supply disruptions
- Current status & prospects …

Scenarios:

- Relevant data
- Escalating & containment scenarios
- Impact of measures taken by countries & alliances
- Time dimension…

Company level:

- SWOT
- Valuation premises (thrive v survival v liquidation)
- Explicit forecast period of stabilising & recovery
- Scenarios (Optimist / Pessimist / Base?)
- Company-specific risk premium

[5] Boston Consulting Group: model & data.

[6] STEEP = social, technological, economic, environmental and political factors;
SWOT = Analysis of company's strengths and weaknesses (internal) & the opportunities and threats originated from the external environment.

We take an example of how to account for the war disruption in valuing the equity of the subject company using the income approach - the discounted cash flow method (DCF).

First, we estimate the enterprise value (EV) using the free cash flow to the company (FCFC) discounted with the weighted average cost of capital (WACC). Then we reach the equity market value (E) conclusion deducting from EV the market value of financial debt (D) and adding the cash available to pay the financial debt at the valuation date.

The effect of war disruption can be positive / negative / neutral, and the possible influences may occur either on FCFC (e.g. income / expenses) or on WACC, or on both. Whichever case, the valuer should mind not to double count for the same effect in both the cash flow and the cost of capital.

$$EV = \frac{FCFC_1}{(1+WACC)^1} + \frac{FCFC_2}{(1+WACC)^2} + \ldots + \frac{FCFC_2}{(1+WACC)^n} + \frac{TV_n}{(1+WACC)^n}$$

$$TV = \text{Terminal value} = \frac{FCFC_{perpetuity}}{(WACC-g)} \text{; where g = long term annual growth rate of FCFC}$$

$$WACC = k \frac{E}{E+D} + R_D \times (1-T) \times \frac{D}{E+D}$$

where k = E(Ri) = cost of equity = Rf + ERP + α,
where Rf = risk free rate, ERP = equity or market risk premium,
α = company specific risk and Rd = cost of financial debt and T = corporate tax rates

To identify potential impacts of conflict disruptions on the general market conditions that primarily affect the activity of the company under valuation, the top-down analysis is initially conducted at the macro level. Next, top-down analysis is conducted at the industry level, focusing on the industries in which the company under valuation operates. Finally, top-down analysis is done at the company level using SWOT analysis and financial analysis. The objective is to support the forecast of the economic benefit stream utilised in the DCF.

The possible increase in WACC will negatively impact EV. This could be caused by possible surges in cost of equity (k) due to possible rises in Rf, ERP, α or R_D, caused by the conjugated effect of altered market conditions and the growing risk perceived by the main market actors (e.g. investors, lenders, authorities, clients, suppliers).

Synthetic valuation process recommendations

- Check for adequacy of data & information used to the valuation date.
- Implement quality control and reliability testing of the valuation models and methods.
- Secure the correlation between all data (macro analysis & industry analysis conclusions should be reflected in the forecasts).
- Avoid double counting the disruption effect in the model (economic benefit flow versus discount rate).
- Respect the requirements of EBVS, especially those presented in this article when uncertainty is detected and disruptions such as war in Ukraine are unleashed.
- Use sensitivity analysis and / or scenario analysis to model and capture uncertainty in the valuation models.
- Use available research tools from sound international providers for assessing the countries, industries or commodities impacted by war disruptions for sensitivity analysis or scenario analysis (base case, best case, worst case) and hints on assessing probabilities to each of these scenarios, or on updated information on refugees, or European macro indicators:
  - https://www.bcg.com/
  - https://www.worldbank.org/en/home
  - https://www.mckinsey.com/
  - https://www.accenture.com
  - https://www.imf.org/en/Home
  - https://www.unhcr.org/
  - https://ec.europa.eu/eurostat/
  - https://www.ecb.europa.eu/home/html/index.en.html
- Consider the perspectives of the industry / company in the altered context, such as:
  - Economic sanctions – local, regional, European, global.
  - Duration, gravity and possible escalation of the war.
  - Actions of other parties (countries, geo-strategic alliances etc.).

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PLANT, MACHINERY & EQUIPMENT VALUATION

#06

The plant, machinery & equipment valuer's approach to data gathering – *How it affects value and how the valuer can verify it*

Paulo Caldeira Martins

The technical scope of the equipment and the different technologies involved present continual challenges for the plant, machinery & equipment (PME) valuer. It is common in any industrial unit to find a range of different specialised equipment and technologies as industry involves increasing technical specificity. Specific individualised manufacturing and performance requirements make it unlikely that the valuer will repeat such specific assessments over the length of a career.

PME valuers must develop a methodology that enables them to use all necessary information available for the analysis and the valuation report.

The valuer is responsible for ascribing a fair value to the subject asset, based on the condition in which it is found. To perform the valuation, the valuer will need all the information required for the report, such as documentary and photographic records, ownership records, technical manuals, technical drawings and final blueprints, and must also collect and submit evidence to show that the subject asset is compliant with the relevant regulations. For some equipment, it will be necessary to obtain documentation attesting to the certification and conformity required for its operation:

- Compliance with safety regulations (Machinery Directive)
- Environmental compliance (noise emitted, refrigerant gases used, and debris produced)
- Energy efficiency certificates
- Certificates of compliance with Standards
- Well-organised and up-to-date documentation on file
- When required, attestation of the subject asset's submission for routine maintenance by the company itself, or subcontracted to accredited companies
- When required, attestation that all regular inspections have been carried out
- Certain equipment is subject to operating permits (e.g. fishing permits associated with vessels)

Failure to comply may, in some cases, prevent equipment from operating, meaning that expensive rehabilitation work or even replacement may be necessary.

All these issues create risks for the valuer that need to be mitigated. The valuer must be prepared to approach each item of equipment methodically, to prevent any lack of awareness from jeopardising the valuation process when assessing equipment that may be prevented from operating.

"This situation will be easier for quality-certified companies, as their own accreditation obligations require them to keep all conformity and compliance records up to date."

Approach

The PME valuer must, in advance, request the documentation required for a document-based valuation that can verify the equipment's operability and conformity.

This situation will be easier for quality-certified companies, as their own accreditation obligations require them to keep all conformity and compliance records up to date.

The valuer must:

- Examine the equipment to be assessed, in person at the site where it operates, and must observe the operational environment for its working conditions
- Prepare a full photographic record for future reference and for submission in the report
- Complete a full identification of the equipment at the site, checking manufacturer's plates, records and serial numbers

Some information can be obtained on the equipment itself, from the manufacturer's plates having a 'CE' marking.

In short:

The approach taken by PME valuers in gathering their initial data will affect the quality of the valuation. This data should ensure that all elements required for a full and accurate identification, document audit and valuation are covered.

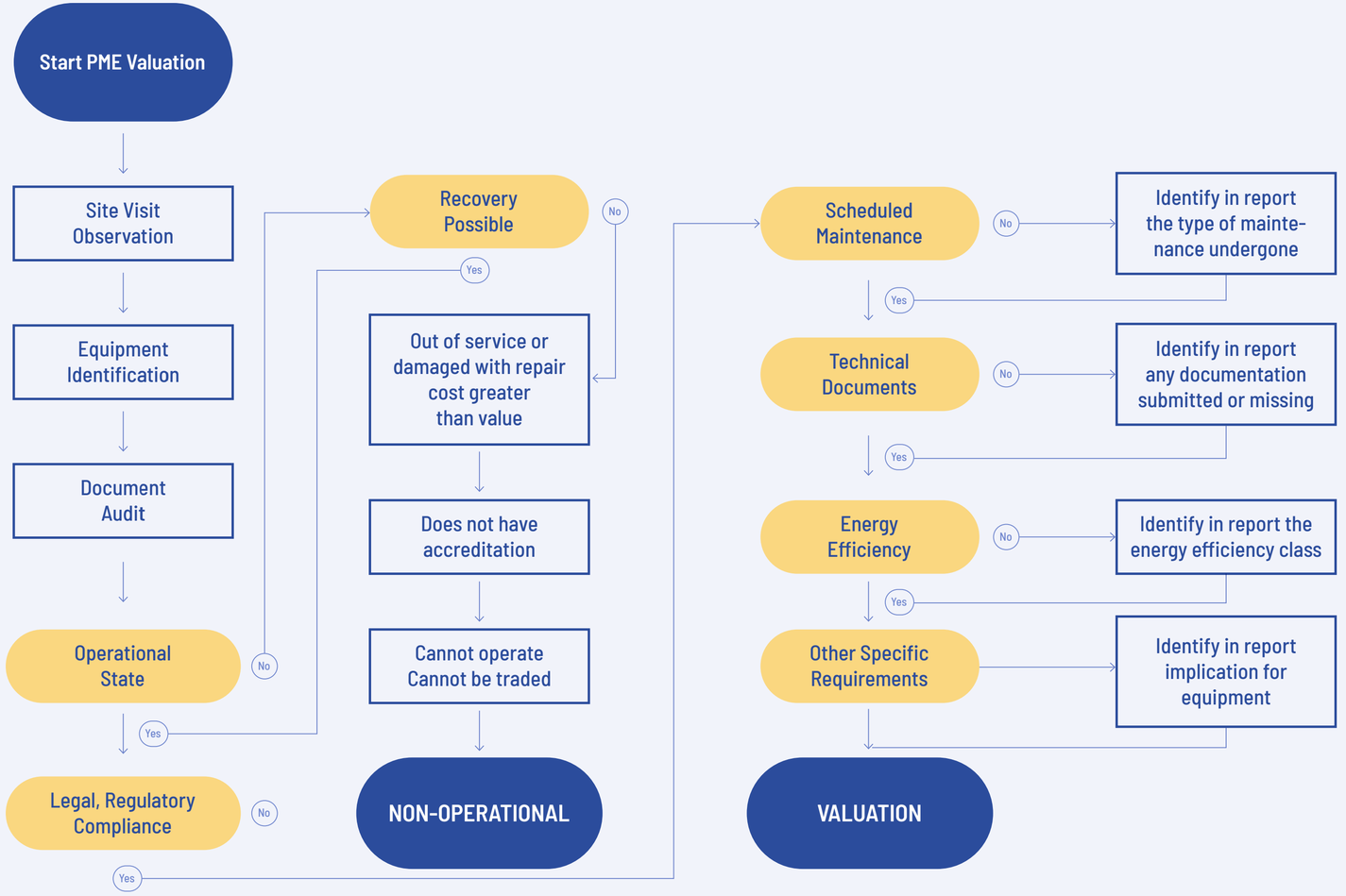
PME valuers are not responsible for certifying equipment, but they are for attesting to its operability, and must request full documentation for the subject equipment to demonstrate its operability, conformity and consequent market suitability.

Since these documents are evidence of the equipment's operability, they must form part of the documentation annexed to the valuation report.

The following simplified flowchart illustrates the proposed approach to data gathering.

"PME valuers are not responsible for certifying equipment, but they are for attesting to its operability"

Flowchart PME valuation data gathering



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CROSS DISCIPLINARITY

#07 Cross disciplinarity in complex valuation projects

Dana Ababei

Cross-disciplinary approaches in valuation projects involve integrating knowledge and methods from various fields to estimate the value of assets or investments more comprehensively and accurately. Some key aspects are:

1. **Economic and Financial Analysis**: Traditional valuation methods rely on financial analysis, including discounted cash flows (DCF), comparable company analysis, and precedent transactions. Understanding economic principles helps in interpreting market trends and financial metrics.

2. **Legal Considerations**: Legal expertise is crucial in valuation, especially for understanding intellectual property rights, regulatory compliance, and contract terms that might impact the value.

3. **Engineering and Technical Assessments**: For valuing physical assets like machinery or real estate, engineering analysis can provide insights into the condition, efficiency, and potential future costs related to the asset.

4. **Market Research**: Insights from market research can help in understanding consumer behaviour, market demand, and competitive dynamics, which are essential for accurate valuation.

5. **ESG Factors**: Sustainability and social impact can influence the perceived value of an asset or company.

6. **Behavioural Science** can help in understanding investor psychology and market behavior, which might affect valuations, especially in speculative markets.

The leveraging of expertise from these and other fields can achieve a more nuanced and accurate estimation, addressing multiple dimensions of value that might be overlooked by a single-discipline approach.

In my opinion the way to survive the crises that periodically affect our profession is by practicing cross disciplinarity in valuation projects, taking account of the six aspects described above and of the relationship between valuation disciplines: Real Estate Valuation – Plant, Machinery and Equipment Valuation – Business Valuation.

The valuation standards help us to better understand what every valuer does and should do to deliver a quality valuation report and grasp the relationship between valuation disciplines. Schematically, the division of labour is generally as in the table below:

Type of market value estimation work	Knowledge needed
Apartment, house, land for house	Basic real estate valuation knowledge – technical and market knowledge skills.
Individual machine (vehicle, agricultural equipment…)	Basic machinery&equipment valuation knowledge – technical and market knowledge skills
Going concern of a business without real estate and machinery (on line shop, barber shop…)	Basic business valuation knowledge – technical and market knowledge skills
Complex real estate property (hotels&motels, gas stations, fast food restaurants, assisted living facilities…)	In-depth real estate valuation knowledge, business valuation knowledge, intangible asset valuation knowledge and machinery&equipment valuation knowledge
Business that includes real estate and machinery and equipment	In-depth business valuation knowledge, real estate valuation knowledge, machinery&equipment valuation knowledge and possibly intangible asset valuation knowledge
An entire plant	In-depth machinery&equipment valuation knowledge, business valuation knowledge, real estate valuation knowledge, intangible asset valuation knowledge and financial instruments valuation knowledge

A qualified valuer has two ways to upskill – choosing to be a specialised expert or an integrator:

a. **Deepening specific skills for the valuation of a single kind of asset** – but that only works if the targeted market is big enough to provide sufficient work even for the best in the field!

b. **Learning new skills** – giving access to new types of work!

Complex properties provide great scope for both skills. Individual valuers can rarely issue a valuation report for a complex property by themselves. Even if they have the knowledge, they are unlikely to be able to do all the work of analysis and valuation within the same time frame as a team. But a valuer who is also the contractor of complex work will be responsible for all of it and will need to understand what each team member is delivering.

The best team composition in the valuation profession comes from matching experts from various disciplines: BV, RE, M&E so as to identify potential blind spots and mitigate biases in analysis and help ensure that all relevant factors are considered, leading to a more accurate and reliable valuation.

A major skill of the integrator is the capacity to choose specialists, assessing and documenting the extent and suitability of their knowledge and ability for the valuation project. Relevant factors may include:

a. Experience in the type of work performed

b. Professional certification or licence in the particular field

c. Reputation and standing in the particular field

The integrator's skill includes understanding the specialist's process and findings and evaluating the specialist's work. Fulfilling that task requires that the specialist – in-house or external – furnish enough information to enable the integrator to check compliance with valuation standards.

An integrator should be the team leader having the knowledge and skills to:

- Understand the complexity of the project
- Select the team members to cover all the valuation specialties needed
- Set the scope of work and tasks for each team member
- Understand what each team member is doing
- Correlate the work results among the team members
- Coordinate team work timing, interfaces, terminology, and compliance with standards
- Name an assistant to help in reviewing the whole work
- Conduct the discussions with clients

A specialist team member in complex projects should have the knowledge, skills and experience to:

- Understand the scope of her/his work and the requirements of the project
- Contribute to defining the processes and developing the procedures
- Understand the interfaces with other team members and with the team leader
- Correlate with other team members
- Use the formats and terminology set by the team leader
- Work professionally and fulfill the duty of care
- Participate in creating an adequate working environment

A **specialist** or a **service organisation** may be used to obtain either data or inputs. The integrator, however, remains ultimately responsible for using data and inputs appropriate for the valuation.

The responsibility for the performance of individual functions within the valuation project may vary depending on organisational structure, but the assignment of responsibilities must be documented and reviewed periodically to ensure that the accountability for the execution of all components is clearly assigned. In short, cross-disciplinarity is not only the condition of excellence in most complex projects, it is also a breeding ground for high skill valuation work for both specialists and integrators.

"a valuer who is also the contractor of complex work will be responsible for all of it and will need to understand what each team member is delivering."

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