

BOOK OF ABSTRACTS
9TH MULTINATIONAL ENERGY AND VALUE CONFERENCE
ESG IN THE ENERGY SECTOR

Dear all,

many thanks for participating in the CEVI conference on 11-13 May 2023! We had a very exciting set of papers that fit with the challenges that corporations and societies are facing today. Our encounters were great and fuelled the development of our field of research. They went on in the wonderful social activities in the train to and from the Louvain-La-Neuve conference place, at the catering sites and in private gatherings.

We thank the Université catholique de Louvain (UCL) for its warm hosting of the conference. Despite the aftermath of the pandemic and its concurrent work pressure, the current challenges in CEVI's key country Turkey and accidental happenings that one may be facing personally, we had around 30 participants from some 10 Eurasian countries and as much as 20 (or 21) papers that were presented enthusiastically.

We especially like to praise our Turkish participants for their (continued) strong involvement, the (new) Cypriot participants for their case studies on energy issues and the ISINI participants for their mutual suggestions to develop new ideas. Not the least, we thank our youngsters, Duën Holterman and Robin van Emous for helping out with the social activities and the technical support.

This small booklet includes the abstracts of the CEVI session papers and the original call for papers. We thank the contributors for their swift response to our request for sending in their texts. We are happy that Springer Verlag and the Central European Review of Economics and Management have allowed us to publish the abstracts.

The next ISINI conference will be held both physically and online in the first half of May 2024 and ISINI will send you an invitation to join it. Lastly, it may be interesting to know that CEVI hopes to hold its 10th (in-person) conference in Turkey, in April 2025. We will keep you in the loop and look forward to meeting you again!

Best regards,

James Thewissen (conference organiser)
Joost Platje (President ISINI)
Wim Westerman (President CEVI)



The Pioneering LNG Energy Project in Cyprus: Choosing Technology, Identifying Economic Value, and Assessing Environmental Impact

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Abstract

The import of natural gas in Cyprus by sea is a project of national, cross-border, and European importance. The LNG import project is the biggest energy project ever undertaken in Cyprus. Cyprus has an isolated energy grid with only one vertically integrated electricity company and no interconnections to neighbouring systems. The new LNG terminal will enable Cyprus to replace the use of heavy fuel oil for power generation with natural gas and cut energy prices.

The LNG import can be very beneficial for Cyprus both in terms of the primarily boosting effect on the economy from reducing the running cost for electricity, as well as from secondary effects like better employability rate, and proceeds from bunkering. The project can change the country's economic model. Also, the project shall reduce CO₂ emissions by at least 30% due to the lower carbon content of natural gas compared to liquid fuels.

Meanwhile, an LNG import project is a challenge for Cyprus due to the strategic importance of this energy project from economic and environmental points of view. The project requires unique technological solutions, like setting up an FSRU, and it is also a challenge for the Cypriot Government, due to a lack of previous experience in the Oil & Gas sector. In total, it took more than 10 years of active efforts just to start the project.

The paper shows that the discovery of natural gas (NG) in Cyprus instead of speeding up the project, as everyone would expect, actually delayed it. The reason for that is the common misbelief at that moment that in a few months after the discovery, NG would have been available for all sorts of purposes on the island.

The paper contributes to the energy studies by systematization, generalization, and structurization of information about the LNG import project in Cyprus, as well as provides practical insights and guidance on how such projects can be started and managed in other locations.

Energy, ESG and Cyber Security

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Paper presented at the 9th Multinational Energy and Value Conference

ESG in the Energy Sector in Louvain-La-Neuve

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Abstract

More and more investors pay attention to environmental, social and governance (ESG) issues. In the literature, ESG is nowadays a hot topic. Investors no longer optimize the twofold trade-off between expected return -risk, but optimize the threefold trade-off expected return, risk and ESG. Also CEVI pays attention to ESG in its ninth book, provisionally entitled: “ESG and Energy Industry: Embracing Change”.

Several authors look at the consequences of ESG for the energy sector. Mostly, the ESG discussion limits to the question in which branches you are not allowed to invest. Mostly mentioned are the fossil fuel and the weapon industry. In other words, the formulation of ESG has been worded negatively: “you are not allowed to invest in ...” The Ukraine war, starting on Feb. 24 2022, forced many institutional investors to rethink their negative opinion about investing in the weapon and / or fossil fuel industry. Although there is an energy switch from fossil fuel to renewables, there is no reduction in the demand for oil and gas. A topic that lost popularity in 2022 was “stranded assets in the fossil fuel industry”.

In this paper, we will discuss ESG from a positive perspective, impact investment in the society. Such investment opportunities can – among others - be realized in cyber security. The risk and consequences of a cyberattack are substantial and in most industries cyber security risk is the largest risk component as of today. In this paper we will look at cyber security for the energy sector.

Do Green Bonds Improve the Stock and Environmental Performance of Energy Firms? International Evidence

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Abstract

Given that the global decarbonization of the energy sector entails huge amount of investment, green bonds have become an important tool and source of long-term capital for energy firms. This chapter examines the impact of green bond issuance on their stock and environmental performance. We analyze a sample of 239 green bonds issued by 80 unique energy firms in the period 2013-2021. We first follow the event study methodology and find that market reaction to green bond issuance announcements is largely positive. Using the difference-in-differences approach, we then show that energy firms generally perform better in their environmental practices. However, our results also imply that green bond issuance has a lagged and temporary effect on stock prices and environmental achievements are not that obvious particularly in the short-term. We draw attention to partly inconclusive nature of these findings emerging from our analyses and offer relevant policy implications for green bond market development on the basis of tackling with greenwashing and scaling up the market share.

Keywords: Green bonds, energy firms, environmental performance, greenwashing, sustainability.

JEL Codes: G12, G14, O13, Q56.

Investment Decision Rationale in Energy Shipping: Case from Cyprus

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Abstract

In light of the current upward trend in the crude oil freight rates and anticipating investment interest in energy shipping, we have prepared this conference paper to show a specific investment rationale from a 2018 oil tanker case from Cyprus. Re-visiting the 2018 analysis today in early 2023 gives interesting insights into the investment decision rationale in energy shipping and the ability of experts to predict market trends when it comes to the oil tankers supply and demand and the resulting freight rates. By its research design, this paper is a case study analysis, in which qualitative methods, such as interviews with experts and personal observations, were combined with quantitative data, both secondary and primary, to set a conceptual decision framework for the purchase of an Aframax oil tanker and apply it to the specific case.

Our findings in 2018 were that the opinions of the commercial experts supported the results of the secondary data analysis, and all the respondents found the year 2018 as an attractive time

for investing in ships. Cash problems, massive aging, and new industry regulations were named as the main reasons for tighter supply in the next years. The results of the financial modelling were satisfactory for accepting the project. Due to low purchase prices and high residual value, the initial required investment was lower while return and other results were better for a 15 years old ship than for a 10 years old unit. However, the risks increased together with the age. Considering that the prices of Aframaxes were hitting their historically low levels in 2018 and that within the next five years the demand for modern tonnage was anticipated to be firm and thus raise their values up to 35% above the 2018 levels, the purchase of a more modern unit was recommended at the time as it could give an opportunity of a beneficial resale at the end of the project or earlier. In view of the latest market developments, we can now conclude that overall, despite the unprecedented turbulence during the pandemic years, the 2018 investment recommendation proved correct and insightful. The current paper's intended contribution is to provide useful practical guidance for potential investors and other professionals who follow the energy shipping market as well as to contribute to the academic research in shipping finance.

A scenario planning: Implementing hydrogen and the strategic positions for MNEs

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ABSTRACT

The purpose of this thesis is to investigate how hydrogen will be implemented in our future economy. Furthermore, the aim is to find strategic positions in the future hydrogen market for MNEs active in the energy sector. The current literature on hydrogen tends to focus on the technical and cost aspect while there is limited attention on how we could implement hydrogen in the future. In this explorative research, the scenario planning methodology was used. The three scenarios are based on the potential strategies of the European Union, which are *Hydrogen Independence*, *Cost Optimization* and *Energy Security*. Based on the literature review five key characteristics were selected which will impact the functioning of the future hydrogen economy. By using the environmental- and positioning school of Mintzberg, strategic positions for MNEs were identified in each scenario. In all three scenarios, the implementation of hydrogen will differ. Besides the strategic positions that MNEs can obtain change. Meaning that the strategy of the EU will affect how hydrogen will be implemented and how MNEs can obtain strategic positions. This thesis helps us understand how hydrogen will be implemented into our economy based on the priority of the European Union. Furthermore, it gives managers of MNEs guidance to identify strategic positions that fit alongside their firms' strategy. Finally, this research gives an incentive for future research as on several topics the interviewees could not find consensus.

Keywords: Hydrogen, Scenario Planning, Renewable Energy, Sustainability, Strategy, Implementation.

Decoupling economic growth from CO₂ emissions in Türkiye

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Abstract

This paper studies the energy situation and the development of CO₂ emissions in Türkiye. Factors that explain the increase in CO₂ emissions are derived by undertaking a complete decomposition analysis for Türkiye over the period 1987–2018. The analysis shows, as is common to relatively fast-growing economies, that the main contributor to the rise in CO₂ emissions is the expansion of the economy (scale effect). The carbon intensity and the change in composition of the economy, also contribute to the rise in CO₂ emissions, but much less. Moreover, the carbon intensity has started to decrease in the 2010-2018 period. The energy intensity of the economy, which is decreasing at an accelerating rate after 2000, is responsible for a significant reduction in CO₂ emissions. A regression analysis with the data shows that a process of decoupling both carbon emissions and energy consumption with respect to economic growth has started in Türkiye over the period 1987–2018, indicating both an environmental and an energy Kuznets curve. Hence, economic growth is possible both without environmental degradation in terms of CO₂ emissions and without increasing the level of energy consumption.

Key words: Decomposition analysis; Türkiye; energy; CO₂ emissions; economic growth.

JEL classification: Q4, Q54

Creating value along the path to zero-emission shipping industry

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Abstract

As the margins of the ecological burden on the planet are limited, it is imperative that new measures-techniques should be found immediately in order to reduce pollution that continues to grow every year. Simultaneously, the increased needs of the population and the expected growth in many economies are leading to increased energy consumption. Thus, all industries with large energy consumption, including shipping, should switch to greener solutions in order to reduce their energy footprint. As a result of these considerations, various agreements –such as the Paris’ Agreement in 2016 and International Maritime Organisation’s Regulation in 2020– have been created aiming to set some limits on pollutants that everyone must comply with. The purpose of this paper is to analyse how existing regulations affects the shipping industry, how various technologies or new fuels that could be environmentally sustainable could be applied to the shipping fleet, what would be the costs that each ship would need to bear, what would be their overall benefits and how one can create value towards the path to zero-emission shipping. Additionally, we demonstrate some new applicable fuels and projects that use renewable energy mainly on trial level. The transition to renewable energy is a complex issue for companies, quite costly, so it is easy to understand that it will have to be thoroughly studied before final decisions are taken. At the same time, each company must act swiftly to meet the standards have been implemented, so as to avoid possible fines.

Key words: Shipping industry, renewable energy solutions, zero-emissions

Sector and Country Effects of Carbon Reduction and Firm Performance

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Abstract

With a data set covering observations from 10 sectors and 53 countries over the period 2004-2019, we study the difference between countries and sectors on carbon reduction and firm performance in terms of the return on assets, the return on equity and the return on sales, as well as the Tobin's Q and the current ratio. The study provides evidence for differences in carbon reduction and financial performance amongst sectors and countries, as well as various groupings thereof. Our results also indicate that the presence of carbon legislation and the level of overall country emissions have a marginal impact on carbon reduction and financial performance on sector and country levels.

The effect of environmental scores on financial performance of energy companies in the European Region

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Abstract

Increasing awareness and expectations for a sustainable environment increases the pressure on the energy industry to reduce its pollution. Despite the importance of the subject, the number of studies examining the effect of environmental responsibility activities on financial performance of companies operating in the energy sector is limited. Also, the findings obtained from previous studies also are mixed about the direction of the relevant relationship. This study examines the impact of environmental responsibility on financial performance within the framework of companies operating in the energy sector in the European Region. In doing so, it probes the validity of the stakeholder theory and agency theory on explaining the relationship between corporate social-environmental responsibility and financial performance. We consider 58 European energy companies that have detailed and classified environmental responsibility scores between 2011 and 2020. According to the applied three-dimensional panel data regression results, we find that the aggregate environmental score of the European energy companies has not a significant effect on their financial performance. However, the resource use score, which is one of the environmental sub-scores, is negatively related to both the return on assets and return on equity of the companies. Moreover, the emission reduction and environmental innovation scores, which are the other environmental sub-scores, do not have a significant effect on the environmental-financial performance relationship. Although we have obtained findings showing that activities aimed at reducing the use of environmentally harmful resources, energy and water have a reducing effect on financial performance by shedding light on the validity of the agency theory, we see that a neutral effect is dominant between the environmental responsibility activities and financial performance carried out in European energy companies in general.

Keywords: emissions score, resource use score, environmental innovation score, return on asset (ROA), return on equity (ROE), energy industry, European Region

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Detecting Unknown Change Points for Heteroskedastic Data

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Abstract

There are several tests to detect structural change at unknown change points. The Andrews Sup F test (1993) is the most powerful, but it requires the assumption of homoskedasticity. Ahmed et al. (2017) introduced the Sup MZ test, which relaxes this assumption and tests for changes in both the coefficients of regression and variance simultaneously. In this study, we propose a model update procedure that uses the Sup MZ test to detect structural changes at unknown change points. We apply this procedure to model the weekly returns of the Istanbul Stock Exchange's common stock index (BIST 100) for a 21-year period (2003-2023). Our model consists simply a mean plus noise, with occasional jumps in the level of mean or variance at unknown times. The goal is to detect these jumps and update the model accordingly. We also suggest a trading rule that uses the forecasts from our procedure and compare it to the buy-and-hold strategy.

Key Words: Structural change, Sup F Test, Sup MZ Test, Istanbul Stock Exchange's common stock index (BIST 100)

JEL Classifications: C01, G11

ENERGY POVERTY IN TÜRKİYE FROM A MACROECONOMIC PERSPECTIVE

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Abstract

Energy has an effect in almost every phase of human life and even societies, from the beginning to the end. These effects can be seen for basic needs as well as higher level needs. On the other hand, it can be observed that there is a remarkable difference in terms of welfare level between advantageous and disadvantaged countries in accessing energy resources. Moreover, the emergence of differences within their borders in terms of energy accessibility of these countries creates differences within themselves in terms of welfare level. Especially, there is a close relationship between energy and development.

Economic development is essential for creating the conditions for economic growth and economic future. On the other hand, there is a relationship between access to clean, sufficient, and economical modern energy resources and development. Low-income households allocate more of their income to basic energy expenditures than high-income households. This raises the issue of scalability and, in addition, since the energy sources preferred by low-income households have relatively lower efficiency, a greater cost arises. In this respect, accessibility to modern energy resources has a serious impact on poverty and therefore development, and accessibility to modern energy resources is an essential condition for prosperity and development. Furthermore, governments' inability to create effective and fair energy policies prevents quality energy consumption. One of the most important factors in increasing the living standards of the poor is their access to modern energy sources. In this context, the energy policies to be developed by governments and the effective provision of modern energy services such as improved cooking facilities, healthy heating and lighting to households will increase the welfare level of people. Ensuring efficient access to energy is a prerequisite for overcoming poverty, promoting economic growth, improving employment opportunities, supporting measures for social services, and promoting human development as a whole. Indicators such as increasing the level of welfare, reducing poverty and economic progress cannot be developed without access to energy resources (Johansson et al., 2012: 160).

Energy Poverty in the 1990s emerges as a more specialized version of the concept of Fuel Poverty, which was introduced in the late 1970s. Although the contents of the concepts of Energy Poverty and Fuel Poverty are close to each other, a clear consensus has not been reached. From a conceptual point of view, energy poverty can be defined as the inability to meet the energy and expressed as the situation where the households cannot purchase energy products at the level and quality necessary for their needs with their income level. Energy Poverty is also defined as the lack of access to sufficient, cheap, healthy, quality, safe and environmentally friendly energy services that support economic and human development (Reddy, 2000; UNDP, 2000). Poverty implied here is an emphasis in terms of access to energy and should not be confused with the concept of economic poverty, although it is related. This concept, which was put forward in England and Ireland, has begun to be examined in more and more countries and from different perspectives. Especially after the 2008 crisis, energy poverty has begun to be mentioned in the context of not being able to meet the energy expenditures of all developed and developing countries. Also, Energy Poverty can basically be expressed as “not being able to access modern energy opportunities”. This situation is not just for developing economies but also for developed economies and negatively affects welfare. Therefore, energy poor households cannot use these basic energy services sufficiently due to high energy expenditure, low household income, inefficient building structures and equipment, and specific energy requirements.

Today, many people still have problems in accessing clean, sufficient, and economical energy sources. Inadequate access to modern energy resources and services is a major obstacle to economic and social development and is an issue that must be tackled in order to achieve the Millennium Development Goals. The use of traditional energy sources creates negative conditions for basic welfare indicators, as poverty restricts access to modern energy sources. These unfavorable conditions may cause the already poor households and individuals to become even poorer, and thus to perpetuate poverty. The reasons why there is no easy criterion for the interpretation of energy poverty in general can be cited as; (i) Energy services are not interchangeable, (ii) There is no agreement on which energy services are essential, (iii) It is difficult to determine the poverty level for each energy service (Culver, 2017).

Concepts that define energy poverty explain poverty in terms of access to energy according to a certain threshold value in technological, physical or economic fields. In the technological threshold approach, energy poverty is addressed as a problem in accessing modern energy services. This term is considered to refer to electrical energy and its variants other than biomass for activities such as cooking and home heating. In the physical threshold approach, the minimum energy consumption associated with basic needs is estimated and those below this threshold are considered energy poor. In the economic threshold approach, on the other hand, it tries to determine the maximum required and reasonable income percentage for energy expenditures. It is accepted that this method is a process used to measure energy poverty mostly in developed countries (González and Eguino, 2015). Fuel poverty therefore sits at the point of overlap of three distinct issues: low-income, high-energy prices and poor housing. Furthermore, the literature asserts the existence of a close relationship between energy use and macroeconomic indicators.

Considering the abovementioned subjects, this study aims to reveal macroeconomic determinants of Energy Poverty in Türkiye spanning the time period between 2009 and 2022. Actually, household surveys are frequently used to measure Energy Poverty in Türkiye. However, there are two important problems here. First, survey studies can change according to the correct determination of the sample and are conducted on a micro-scale. It may be insufficient to reveal macro effects. Secondly, the data obtained from the survey are cross-sectional and do not include time-dependent features. However, determining the macro variables that affect Energy Poverty in a country is important in many ways. Therefore, Energy Poverty should be obtained at the macro level. For these reasons, this study aimed to calculate Energy Poverty on a macro scale. While doing this, the trend separation method, a similar approach used in calculating the output gap in the literature, was used. Estimating the Energy Poverty in Türkiye is carried out by finding the difference between the potential and actual electricity consumption of Türkiye. The potential electricity consumption of Türkiye is obtained by implementing the Kalman Filter method. Furthermore, Autoregressive Distributed Lag (ARDL) model was used to determine the effects of chosen macroeconomic variables on Energy Poverty. Measuring the Energy

Poverty has two main purposes. First, energy-poor households should be identified, and second, deprivation aspects should be reflected. Besides, obtaining and measuring Energy Poverty as time series is essential as it helps for better understanding of the effects of Energy Poverty.

According to the empirical findings of the study, Energy Poverty can be reduced by increasing industrial production. Here, the fact that the increase in the industrial production index did not negatively affect the access to energy indicates that productivity may have increased. From a different perspective, it could be expected that the increase in industrial production would increase energy consumption, thus increasing Energy Poverty. The results actually indicate that this issue did not occur. One of the explanations for this may be that the energy need during production has not increased due to the increased efficiency in production techniques despite the increase in production. On the other hand, the increase in oil prices increases Energy Poverty. In addition, the impact of oil prices on Energy Poverty is more dominant than natural gas prices. Also, Energy Poverty is negatively affected by its delays. In other words, the increase in Energy Poverty contributes to the reduction of Energy Poverty in the forthcoming time periods. This finding can be explained as increasing the electricity supply to meet the needs of the units that could not assemble their energy needs during the period or taking micro measures to eliminate Energy Poverty. For the future studies, it is suggested that detailed investigations on the subject should be assessed and examined with more complex data.

ESG Performances of Energy Companies in OECD Countries: A Clustering Approach

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Abstract

Examining the *Environmental, Social, and Governance* (ESG) aspects of the organizations is one of the current concerns related to sustainable investment decisions. Energy markets are one of the key areas where ESG concepts are applied due to their dynamism, scale, and effect. Noting that the ESG framework is very appropriate for use of multi-criteria decision methodologies to rank the alternatives, the current research is motivated by the idea that clustering can also serve as a tool to evaluate ESG performance. Accordingly, we propose clustering as a tool for ESG analysis for OECD energy companies that enables us to identify the conflicting areas on ESG performance while avoiding potential controversies, the requirement for predefined information, or subjectivity in aggregation. The *k-means* clustering algorithm is used to analyze a data set of 231 energy organizations under the three ESG pillars of *Environmental, Social, and Governance*. We identify the patterns across the clusters that may signify high and low performance in each pillar and discuss the properties of prominent clusters in terms of business classifications and country of headquarters.

Keywords: Energy Planning; Sustainability; ESG; Clustering; OECD

JEL Codes: Q40, Q56, C38

The Natural Gas War Between Europe and Russia After the Invasion of Ukraine

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Abstract

This study aims to explain and evaluate the Euro-Russian natural gas war, which started after the Russian attack on Ukraine in 2022, within the scope of the energy policies of both sides before and after the war. This study evaluates short-term and medium-term measures of Europe and Russia. In addition, a SWOT analysis is made, both sides' strengths and weaknesses are discussed, and their opportunities and threats are explained. As a result, it is revealed that both sides will suffer from the gas war. However, in the medium term, Europe's developing LNG market and renewable resources may emerge stronger from this war. Still, Russia, which has lost its political and economic power over Europe, will suffer more.

Keywords: Natural Gas; Trade; Ukrainian War; Europe; Russia

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CALL FOR PAPERS

9th MULTINATIONAL ENERGY AND VALUE CONFERENCE

ESG IN THE ENERGY SECTOR

You are cordially invited to submit your research papers for presentation consideration at the CEVI conference that will take place on **May 11th-13th, 2023**. This conference, hosted by the LIDAM group of the Université catholique de Louvain (UCL), will be organized *both in person and online* and aims at bringing together academics and practitioners from all over the world to focus on timely energy finance and investments, financial performance, energy markets and valuation issues in the energy sector.

The theme of this year's conference focuses on the environmental, social, and governance (ESG) concerns, which are now high on the agendas of policymakers, firms, investors, and academics worldwide, in particular for the energy industry. The energy industry is one of the leading actors in the climate change challenges. However, today's energy industry is not only exposed to considerations regarding its impact on the environment, but the sector now also has to consider its social and governance policies in order to meet ESG expectations. Yet, such influences on the value of energy firms remain to be investigated. This conference will be the opportunity to present, discuss and examine such challenges, along with other energy issues, such as: *Financial Regulation; Financial Markets; Financial Risks; Asset Pricing; Value at Risk; Capital Structure; Sourcing Capital; Corporate (Re-) Structuring; Corporate Governance; Behavioral Finance; Financial Performance; Cost Control; Financial Accounting; Fiscal and Legal Issues*.

This conference is organized in collaboration with the Center for Energy and Value Issues and the Energy Markets Research and Application Center of Hacettepe University in Ankara, Turkey.

Submission

Please submit your papers (completed or nearly completed) or participation interest via e-mail to: James Thewissen (james.thewissen@uclouvain.be), by February 15th, 2023. Authors will be notified regarding the acceptance of their papers after reviewing. Final acceptance of full papers will be notified by February 28th, 2023.

Conference Fee

The conference fee will be €100. It will be waived in case of on-line attendance.

CEVI Book

Papers selected for this conference may be submitted for possible publication in a CEVI book, dedicated to this conference by Springer Verlag, or inclusion in the Central European Review of Economics and Management. All submitted papers will be subject to a blind peer review process. Further information regarding conference organization and accommodation, travel arrangements, fees and activities will be published on the conference website in due course. For any inquiry regarding the submission process and registration at the conference please contact Prof. dr. James Thewissen (UCL) by e-mail at: james.thewissen@uclouvain.be

Conference website

The address of the conference website is: <https://www.2023cevicconference.com/>

