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The Energy and Value Letter brings together academics and practitioners worldwide to discuss timely valuation issues in the energy sector. It publishes news from the Centre for Energy and Value Issues (CEVI), its linked organizations and others (including calls for papers), columns on topical issues, practitioners' papers: short articles from institutions, firms, consultants, etcetera, as well as peer-reviewed academic papers: short articles on theoretical, qualitative or modeling issues, empirical results and the like. Specific topics will refer to energy economics and finance in a broad sense. The journal welcomes unsolicited contributions. Please e-mail to <u>w.westerman@rug.nl</u> (Wim Westerman), a copy of a news item, column or a completed paper. Include the affiliation, address, phone, and e-mail of each author with your contribution. A column or news item should not have more than 600 words and a paper should not exceed 5,000 words, albeit that occasionally larger pieces can be accepted.



Looking back at the 6th CEVI conference (Güzelyurt, Northern Cyprus, May 18-20, 2017)

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Sometimes one cannot be more unlucky. When flying to Northern Cyprus, Peter Holm (from the Dutch company New Wave) and I myself missed a connection in Ankara and despite all of the efforts taken, we had to miss the whole first day of the conference. As I understand, the conference organisers Rafet Akgünay and Mehmet Baha Karan (as well as Wim Westerman on behalf of the CEVI board) walked the extra mile and things really went well. I like to express my thanks to them here.

What I missed was a day full of lively presentations and discussions on a broad array of topics. The keynote speech by Ersin Özince (Chairman Board of Directors, Iş Bank, Turkey) and the insights on renewable energy from Ali Kantur (President, Işbir Holding, Turkey) and Gerben van Straaten (CEO of Walas, Canada/The Netherlands) made the starter for the day. Next there were sessions on pipeline projects and political risk, financing energy projects and regulatory trends in the energy industry.

In the next day, there were eight paper sessions with about twenty papers being presented. One session was organized by our friends from ISINI and two sessions dealt with geopolitics and energy markets respectively. Other sessions were on energy and finance, energy economics and natural gas markets. A link of many papers to the upcoming CEVI book that focuses on geostrategic issues was undeniable and we can also envision the next book starting from some papers that were presented.

Of course, with such professional organisers, including the people from the Hacettepe University in Ankara, we had many nice functions. A highlight was the gala dinner where the rector of METU Northern Cyprus, Professor Nazife Baykal, joined us and gave closing remarks. Another function that helped to tie our bonds and to shape new plans was the beautiful tour in the mountains and the coastal area, with stops in the cities of Kyrenia and Nicosia. And our guide was an attraction of his own.

In the course of the conference, we had our annual board meeting. In this meeting, James Thewissen (University of Leuven, Antwerp, Belgium) and Wietze Lise (AF Mercados, Ankara, Turkey) were established as board members. We are happy that they support CEVI in staying "young and exciting". They will introduce themselves in this issue of the Energy and Value Letter. The board also decided on the renewed CEVI strategy document, which will be published in the next EVL issue.

All in all, I feel that the conference has inspired us to continue with our good work as an organisation at the crossroads of both theory and practice on fossil fuels and renewable fuels, with a focus on the creation of financial value and be it also personal value for all that we deal with and meet in this way.



New board member: Wietze Lise (Wietze.Lise@afconsult.com)

Dr. Wietze Lise is both a Principal Consultant at the Energy Markets unit in AF-Mercados EMI and a Freelance Consultant/director of B & W Energy Consultancy. His main work experience is in power and natural gas markets both in Europe and Turkey. However, he also has knowledge and experience with economic and technical aspects of Renewable Energy, Energy Efficiency, and Carbon Trading.

During his twenty-plus years of research and consultancy experience, he worked in the Netherlands at several research and consultancy companies who were leaders in the energy, environment and water field. In addition to that, he worked together with multidisciplinary teams both in Europe and Turkey, and acquired, produced and managed a myriad of projects.

Wietze Lise has more than forty published articles and chapters in various international journals and books. He is experienced in economic modelling, cost-benefit analysis, impact assessment, cost estimation, financial and budgetary analysis. He holds an MSc in Applied Mathematics from Twente University, Netherlands and a PhD in Economics from Delhi School of Economics, India.

New board member: James Thewissen (james.thewissen@kuleuven.be)

Dr. James Thewissen is Assistant Professor in the Faculty of Economics and Business, University of Leuven, Belgium. James has a Ph.D. in Business Economics from the University of Leuven and the Vrije Universiteit Brussel.

His research focuses on the manner in which managers strategically report qualitative and quantitative information in financial disclosures, such as earnings press releases or CEO letters to shareholders. James is also interested in energy issues and their impact on firm valuation. He contributed to the Center for Energy and Value Issues through various conference and book additions.

James Thewissen is also interested in the analysis of the performance of alternative UCITS. His research has been well-received both nationally and internationally, earning best paper awards at numerous conferences. His most recent publications include "Managers set the tone: Equity incentives and the tone of earnings press releases" in the Journal of Banking & Finance and "Analysts' forecast error: a robust prediction model and its short-term trading profitability" in Accounting & Finance.



Call for Papers: ISINI-13 Wroclaw, August 2018

The thirteenth international conference of the International Society for the Intercommunication of New Ideas (ISINI) will take place at the WSB University in Wroclaw, Poland, 29-30 August 2018. You are invited to submit papers that are within the scope of ISINI.

The purpose of the Society is: to foster the discovery and dissemination of new ideas, in particular in economics and other social sciences, to test these ideas and to study the application to problems of the real world. The Society aspires to realize its purpose by creating and upholding an environment where economists join forces with scholars from other disciplines.

The major instrument of ISINI has until now been its conference. So next to the usual economists, we hope to welcome scholars in Wroclaw who are working in other social sciences (including management, law, history and political science), who are cooperating with economists in common research projects or who are doing research in areas where both sides could benefit from an exchange of ideas.

The organizers invite scholars, young and old, to submit papers around six focal themes:

- 1. Climate change regulation 2.0. Making the Paris agreement work
- 2. The university as an arena of sustainability transition
- 3. Global collapse. There is no alternative (TINA) and a "post-truth safe space?"
- 4. Markets, Money and Democracy
- 5. Transdisciplinarity (research that bridges the conventional dividing lines)
- 6. Special CEVI session on "Energy and Valuation Issues"

The objective of the CEVI session is to bring 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 worldwide. *Specific topics* refer to energy issues, and include:

Financial Regulation; Financial Markets; Financial Risks; Asset Pricing; Value at Risk; Capital Structure; Sourcing Capital; Corporate (Re-) Structuring; Corporate Governance; Behavioural Finance; Financial Performance; Cost Control; Financial Accounting; Fiscal and Legal Issues.

Please submit your papers (completed or nearly completed) or participation interest via e-mail to: Dr. Wim Westerman (<u>w.westerman@rug.nl</u>) and Dr. Johan van Ophem (<u>johan.vanophem@wur.nl</u>).

The submission deadline is March 1, 2018. Notification of acceptance will be made shortly hereafter.

Selected papers may be submitted for possible publication in a CEVI book at Springer Verlag, the Energy and Value Letter (http://centerforenergyandvalue.org/publications.html), the Central European Review of Economics and Management (<u>www.cerem-review.eu</u>), or the Central and Eastern European Journal of Management and Economics (<u>www.ceejme.eu</u>).



Political risk, pipeline gas supply continuity and the financial economics of oil and gas market sectors: a theoretical model

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Abstract

This theoretical paper suggests that political risk in pipeline gas exporter countries is at the core of economic and financial health of oil and gas sectors in pipeline gas importer countries. A testable multifactor market model, based on early portfolio theory and research, is introduced and ultimately aimed at the discovering the dynamic effects of pipeline gas supply uncertainty. It focusses on pure political risk (rather than the broader concept of country risk or the narrower concept of sovereign risk) as one of the exogenous variables. Global press has indicated that political risks in a particular pipeline gas exporter country has interfered with gas supply to Western European importer countries, several times over the past decade. If this is truly an ongoing problem, gas importer countries need to look closely at gas supply diversification with part of supply emanating from low political risk gas exporter countries, even if such exports are "shipped by sea" and thus likely to be more expensive.

Introduction

This paper is motivated by the need to bring attention to the risks to supply of natural gas when delivery to importers is by way of pipeline. The overall risk is that the gas, for whatever reason, may be turned off at the source country, with importers subsequently left high and dry. This problem has occurred several times over the past decade, for example, in the case of Russian pipeline gas flowing through the Ukraine, to other parts of Europe and to large energy consumers, such as, Turkey. Russia is estimated to supply around 35% of Europe's gas (British Gas, 2017). In the medium to long-term it is put that political risk in the pipeline exporter country, will be at the core of gas supply continuity.

By way of examples, the UK has to this point provided around 45% of its domestic natural gas requirements, but is dependent on pipeline imports from Norway and Russia for around 40% of is requirements (British Gas, 2017). The USA provides almost 100% of its domestic requirements and most transport for domestic production in both countries and any imports is by pipeline (EIA, 2017). Consideration of natural gas exporter political risk factors for supply to the UK and the EMU are relevant, but in the US scenario such consideration is at present superfluous as the US internally supplies most of what they need. South American coun-

tries rely on a substantial gas pipeline network and it is suggested that political risk in supplier countries is a potential problem for pipeline gas importer countries in that continent.

Australia is a democratic, developed economy with historically low levels of political risk. Within the next decade, it is expected to become the largest global gas exporter as international governments, industries and electricity providers and users reject nuclear power plans and convert from oil and coal fired to cleaner burning natural gas. Australian natural gas is currently exported primarily to China and South East Asia. Australia ships gas by sea with pipeline delivery deemed impractical and uneconomic in terms of flexibility and cost. Australian gas is expensive to produce and ship and this is reflected in its cost, however, it is posited that an effective trade-off of price for supply continuity should be considered by, for example, Western European gas importers, who are largely dependent on Norwegian and Russian pipeline gas.

In the medium term, the global demand for natural gas will encroach increasingly into traditional fossil fuel power generation markets. It is expected that Australian exporters will be ready for a strong increase in global gas demand with increased capacity in production, liquefaction and shipping. Australia is one country that is conscious of the need to provide natural gas supply continuity. Ultimately, as Norwegian and North Sea gas declines it may be a forgone conclusion that natural gas importers, especially in Western Europe and the UK, will diversify further between pipeline and "shipped by sea" supply.

This paper takes the theoretical position that the financial health of any natural gas importing country's energy sector, when imports are by pipeline, is reflected in the movement in that country's oil and gas stock market sector (thus treated endogenously). This financial health in turn is influenced by exogenous factors, including global economic conditions (as reflected in the global stock market sector including oil and gas and the global market excluding the oil and gas sector), domestic economic conditions (as reflected in the country stock market sector excluding oil and gas) and finally, political environments in oil and pipeline gas exporting countries. This model may also in the future be adapted to compare similar multifactor market models for importers of natural gas from exporters of "shipped by sea" natural gas. The underlying issue is whether or not gas supply continuity (as reflected in exporter country political risks) is an important factor in determining the financial and economic health of the oil and gas sectors of the natural gas importing country.

Section One above provides background and motivation. Section Two discusses country and political risk in relation to natural gas supply continuity. Section Three provides a review of some of the important early literature used to formulate an innovative theoretical model incorporating political risk. Section Four describes that model in greater detail. Section Five provides a conclusion and provides policy alternatives for natural gas supply continuity.

Country risk and political risk

The starting point to explain the motivation is the recognition that studies into energy crises, including supply crises, have focussed largely on economic and financial factors in energy markets and to a lesser extent on the inhibition of the free interplay of supply and demand through cartel pricing behaviour. Future studies, it is posited herewith, need to go beyond the simple analysis of historical and financial information. In addition, the OPEC cartel has more recently become less relevant in its influence over oil (and therefore gas pricing).

Country risk and political risk are often confused by researchers. Country risk reflects the ability and willingness of a country to perform its international obligations. The three components of country risk are economic, financial and political risk. Economic and financial risk, as components of country risk, reflect a country's ability to meet its international obligations. These components are objectively assessed based on historical balance of payments information. The impact of pure political risk on energy markets has been neglected in past research. Political risk, according to risk ratings agencies such as ICRG, is described as the late or non-fulfilment of international obligations by a country (thus, this includes non-fulfilment of natural gas supply obligations) due to purely political factors (such as riots, strikes and civil unrest).

Political risk is influenced by human and cultural factors (such as corruption, history of law and order and quality of bureaucracy). Essentially, political risk defines the willingness of countries to perform their international obligations. Political risk is subjectively assessed by a survey of risk international risk ratings experts and thus is subjectively quantified as it is based on opinion. The components of pure composite political risk according to ICRG (2010) are contained in Appendix 1.

Early literature on oil and gas stock market sectors and political risk relationships

Financial economic theory, drawing specifically from early portfolio theory (Markowitz, 1959), the theory of the capital asset pricing model or CAPM (Sharpe, 1964; Ross, 1976; Roll, 1977, Fama and French, 1992) and the efficient market hypothesis (Fama, 1970) provide the theoretical base for the study. Arbitrage pricing theory based on the CAPM (Roll, 1977), is particularly relevant when extended to an international context in an international capital asset pricing model for country oil and gas industry markets. Systematic or quantifiable (expected) components of the model are economic and financial in nature and the unsystematic (unexpected) component is country specific. The latter element is therefore in part reflective of human behaviour in a country's political system, which in turn is affected by social, legal and cultural factors in that country.

The literature review draws on substantive early evidence of significant relationships between economic and financial information and sovereign risk, country risk and political risk (For example, Holthausen and Leftwich, 1986; Hand, Holthausen and Leftwich, 1992; Maltosky and Lianto, 1995; Cantor and Packer, 1996; Erb, Harvey and Viskanta, 1996; Diamonte, Liew and Stevens, 1996; Hill, 1998; Radelet and Sachs, 1998; Ferri, Liu and Stiglitz, 1999; Reisen and von Maltzan, 1999; Hooper and Heaney, 2001; Brooks, Faff, Hillier and Hillier, 2004; Hooper, Hume and Kim, 2004; Busse and Hefeker, 2005; Simpson, 2007, 2007a). Most researchers (except for example, Busse and Hefeker (2005) and Simpson (2007, 2007a) examine country and sovereign risk ratings rather than pure political risk ratings. However, most evidence indicates that country/sovereign risk (which includes pure political risk) has a significant relationship with stock market price changes.

Multifactor models may not be firmly founded in capital market or economic theory and there are many different specifications (Reilly & Brown, 2003). Ultimately, if political, social, legal and cultural factors are to be taken into account in a model of country stock market price changes, it is necessary to assume that they are incorporated in such a basic market model. This avoids the myriad of problems encountered in more advanced versions of the capital assets pricing model or arbitrage pricing theory or the multifactor models. Reilly and Brown (2003) imply that it is feasible to apply a basic market model to a financial system using systemic stock price index data provided the constituents of the indices used are representative of the industry in the country concerned. This paper would in future test its models using stock market index data.

A testable model

The underlying proposition of the following theoretical model is that the financial health of a pipeline gas importing country's oil and gas stock market sector is dependent on global and domestic economic and financial information as well as on the political risks in the pipeline gas exporter country. Such risks reflect gas supply continuity.

$$P_{E_{i_t}} = \alpha_t + \beta 1(P_{GE_t}) + \beta 2(P_{GS_t}) + B3(PPRit) + e_{i_t}$$
(1)

Where;

 $P_{E_{i_t}}$ is the value of a natural pipeline gas importer country's oil and gas industry stock mar-

ket sector price index i at time t.

 P_{GE_t} is the value of the global oil and gas industry stock market sector index at time t.

 P_{GS_t} is the value of the global stock market price index at time t (this value to exclude the oil and gas sector).

PPRit is the political risk rating for pipeline gas exporting country i at time t.

 α_{\perp} and β 's are the regression coefficients representing the proportion of systematic (or mar-

ket risk) in the pipeline importer country oil and gas industry stock market sector *i* at time t. According to portfolio theory these components are based on historical and financial information and are non-diversifiable risks.

 e_i is the error term of the regression indicating the unsystematic risk in the country oil and

gas industry sector *i* at time t. According to portfolio theory this component of total risk is subjectively assessed (and quantified), country specific and is diversifiable. Prior to the specification of this model political risks would have been included in the equation residual according to portfolio theory.

This model can be examined as a single period model or it can be adapted to study dynamic relationships by optimally lagging the endogenous variable and moving that lagged variable to the right hand side of the equation as well as adding the optimally lagged exogenous variable to the right hand side equation and examining that model as a VAR and a VECM. This will determine leading and lagging variables in the model in the short-term, as well as discover significant long-term equilibrium relationships. The above model can apply end of month data from sources such as DataStream (stock market information) and ICRG political risk ratings). Monthly data needs to be examined as political risk ratings are only reported at the end of each month.

The study could then respecify the model to include importers of "shipped by sea" gas and political risk ratings of exporters of "shipped" by sea gas. The differences between the effects on country sectoral financial health by political risks in "shipped by sea" exporter countries could be compared. An alternative may be to assume that political risks are embodied (as unsystematic risks) as part of the residual and include a dummy variable on the right hand side of the equation specifying whether the political risk relates to a pipeline gas exporter country or a "shipped by sea" gas exporter country.

Conclusion

Considerable empirical work remains to be completed. A large sample of pipeline gas importing and gas exporting countries requires examination. The effects also require reexamination and comparison with gas "shipped by sea" exporter countries. Short-term leading and lagging indicators and significant long-term equilibrium relationships require investigation.

However, the facts are that on several occasions in recent years, as reported in the media, economies and oil and gas sectors of pipeline gas importing countries have suffered due to the lack of supply continuity and this, it is suggested, is a facet of political risk in the gas exporter country. One solution for gas importers is that they do not place substantive reliance on pipeline gas supplies and that they diversify their supply sources into "shipped by sea" gas from low political risk countries, for example, Australia, Canada and the United States.

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Appendix 1

Definitions and explanations of pure political risk components (ICRG, 2010)

Government stability ratings are an assessment of a government's ability to remain in office by carrying out declared policy plans. The subcomponents of this factor are government unity, legislative strength and popular support. According to the ICRG ratings, socio-economic conditions relate to pressures that conspire to constrain government action or to fuel social dissatisfaction. The subcomponents in this category are the level of unemployment, the degree of consumer confidence and the level of poverty.

The investment profile factor affects the risk to investment not covered by other political, economic and financial components and is made up of contract viability and expropriation, profit repatriation, and payment delays.

Internal conflict is an assessment of political violence in a country and its impact on governance. The highest rating means that there is no armed or civil opposition to the government and the government does not engage in arbitrary violence (either direct or indirect) against its own people. Under this rationale the lowest scores would apply to those countries where there is ongoing civil war. The subcomponents of this risk factor are thus, civil war or coups threat, terrorism or political violence, and civil disorder.

External conflict measures are an assessment of the risk to the incumbent government from foreign action, which includes non-violent external pressure (for example, diplomatic pressure, withholding of aid, trade restrictions, territorial disputes, and sanctions) to violent external pressure (such as, cross-border disputes and all-out war). The subcomponents of this category of pure political risk are cross-border conflict, and foreign pressures.

Corruption is an internal assessment of the political system. Corruption distorts the economic and financial environment and reduces the efficiency of government and business in the way the foreign direct investment is handled. Corrupt practices enable people to assume positions of power through patronage rather than ability. By so doing, an inherent instability is introduced into the political process. Examples of corruption include special financial payments and bribes, which ultimately may force the withdrawal of or withholding of a foreign investment. However, excessive patronage, nepotism, job reservations, "favour for favours", secret party funding, and suspiciously close ties between government and business have a lot to do with corruption. A black market can be encouraged with these forms of corruption. The potential downside is that popular backlash may lead to the rendering of the country ungovernable.

Military in politics is a problem because the military are not democratically elected. Their involvement in politics is thus a diminution of accountability. Other substantial ramifications are that the military becomes involved in government because of an actual or created internal or external threat. Government policy is then distorted (for example, defence budgets are increased at the expense of other pressing budgetary needs). Inappropriate policy changes may be a result of military blackmail. A full-scale military regime poses the greatest risk. Business risks may be reduced in the short-term but in the longer-term the risk will rise because the system of governance is susceptible to corruption and because armed opposition in the future is likely. In some cases, military participation will represent a symptom rather than a cause of higher political risk.

Religious tensions emanate from the domination of society and or governance by a single religious group that seeks to replace civil law and order by religious law. Other religions are excluded from the political and social process. The risk involved in such scenarios involves inexperienced people dictating inappropriate policies through civil dissent to outright civil war.

The law and order components are assessments of the strength and impartiality of the legal system and popular observance of the law respectively.

Ethnic tensions relate to racial, nationality or language divisions where opposing groups are intolerant and unwilling to compromise.

The democratic accountability component is a measure of how responsive government is to its people. The less responsive it is the greater the chance that the government will fall. This fall will be peaceful in a democratic country but possible violent in a non-democratic country. The institutional strength and the quality of the bureaucracy is a measure that reflects the revisions of policy when governments change. Low risk in this area applies to countries where the bureaucracy has the strength and expertise to govern without major changes in policy or interruptions in government services. That is, bureaucracies have a degree of autonomy from political pressure with an established independent mechanism for recruitment and training.