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Using investment appraisal models in strategic negotiation: The cultural political economy of electricity generation

Liz Warren ^{a,*}, Will Seal ^b^a University of Greenwich, Park Row, Greenwich, London, SE10 9LS, UK^b Loughborough University, Loughborough, Leicestershire, LE11 3TU, United Kingdom

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ABSTRACT

Although accepting that the Discounted Cash Flow model of investment appraisal has well known technical limitations, researchers have begun to explore its performative properties. This paper demonstrates how the Discounted Cash Flow model frames negotiations between actors around narratives of economization, marketization and financialization in a regulated industry. Reconnecting economics and politics, the theory of Cultural Political Economy is used to interpret and evaluate an empirical study of Great Britain's electricity generating industry. Although alternative imaginaries, based on political and employment goals, have historically influenced investment decision making in the industry, the current narrative of investment appraisal is dominated by Discounted Cash Flow models. These models have allowed industry players to construct imaginaries of an investment hiatus, leading to the possibility of future power cuts and blackouts, and a need for guaranteed prices.

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1. Introduction

Much of the Investment Appraisal (IA) literature conforms to (Northcott (1991):221) observation that Discounted Cash Flow (DCF)¹ concepts proceeded from economic literature, conveying many of the basic premises of neo-classical theory. Economic literature introduces notions of economic efficiency and shareholder wealth maximization, which are embedded in a normative context of economic formalism and instrumentalism (Çalışkan & Callon, 2009). We argue that models of investment, such as DCF and Net Present Value (NPV), should not be perceived as purely passive calculative techniques. Accounting models such as DCF, can “do things” not just fulfilling the conventional prescriptive role of assisting human actors to make investment decisions, but also helping ‘to create and distribute Homo Economicus...’ as ‘... economic agents result [ing] from the framing and distribution of calculative agencies’ (Vosselman, 2014, p. 184). Yet the argument

presented here is not merely that human ontologies can be changed but ‘that calculation and noncalculation reside not primarily within human subjects but in material arrangements, systems of measurement, and methods of displacement - or their absence’ (Callon & Law, 2005, p. 718). In this sense, the IA model is itself an actor and ‘rather than representing reality, directly intervenes to construct the reality it purports to describe ...’ (Cushen, 2013, p. 316).

We develop these performative aspects of IA models (Doganova & Eyquem-Renault, 2009) in the empirical context of negotiations about the construction of new electricity generating plants (known generally as Power Stations). Just as Callon (1998a; 2007) and MacKenzie (2007) have shown how a model such as the Black-Scholes formula can help make derivative markets; *our submission is that the NPV/DCF model can frame public policy debates in a particular way*. Our specific public policy concerns relate to negotiations around the regulation of the electricity generation industry. Such negotiations *could* draw on diverse perspectives, such as scientific, engineering, political, and regulatory. Although significant negotiations centre on economic concepts (Hoffmann, 2007), we argue that an economic focus is not inevitable, but rather arises from processes of economization (Çalışkan & Callon, 2009), marketization (Çalışkan & Callon, 2010), and financialization (Cushen, 2013) supported by various human and non-human actors. We argue that IA models, especially DCF/NPV, provide a common frame of reference for negotiators, driving the financialization process and

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* Corresponding author.

E-mail addresses: e.warren@gre.ac.uk (L. Warren), w.b.seal@lboro.ac.uk (W. Seal).

¹ DCF means Discounted Cash-Flow and is used interchangeably with Net Present Value (NPV).

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promoting a neo-liberal approach. Throughout this process, issues of sustainability and security of supply are subsumed into a financialized discourse or *agencement* (Callon, 2007), framed by accounting calculations and financial rates of return.

Elaborating on MacKenzie's 'conditions of felicity' (2007:69), we analyze the cultural, political and economic circumstances in which the performativity of DCF/NPV is likely to be enhanced, and other situations when counter performativity or misfires occur. We propose an alternative political economy theory that recognizes the performative aspects of economic and accounting models, but which locates them in critical and reflexive frames. Hereby, we seek to reconnect economics and politics around performativity, to develop performativity as politics, 'to help reinforce political analysis of markets and market-making ...' (Cochoy, Giraudeau, & McFall, 2010, p. 141). In particular, we draw on the concept of imaginaries, as developed by the theory of Cultural Political Economy (CPE) (Jessop & Sum, 2016; Sum, 2012). We demonstrate that the electricity market in Great Britain (GB) has been subject to ongoing experimentation (Callon, 2009), arising from the construction of different *imaginaries*. Developing the negotiating role of IA models, we argue that the generators have posited a future imaginary of blackouts and power cuts, proceeding from a failure to invest in new generating capacity. In essence, the generators mobilized IA models as rhetorical devices in policy negotiations with the GB government. By analyzing the outcomes of these negotiations, we evaluate the extent to which they can be attributed to the performative role of IA models.

In order to set out its theoretical and methodological foundations, the paper proceeds with a selective review of the literature on performativity, particularly concentrating on capital budgeting and the electricity generation industry. It then proceeds to use CPE theory to interpret original fieldwork. Finally, drawing on the theory and the empirics, the paper discusses capital budgeting practices in relation to complex electricity generation negotiating scenarios.

2. A performative perspective on IA models - framing, spillovers and calculative practices

This section grounds our performative perspective in IA models drawn from the wider literature on economization, marketization, financialization and calculative practices. It argues that IA models can play a role in framing all these processes, but also acknowledges that such framing is inevitably accompanied by spillovers that confound attempts to de-politicize (Callon, 2010) issues such as energy generation. Then, building on an emerging literature on critical performativity (Cabantous, Gond, Harding, & Learmonth, 2016; Spicer, Alvesson, & Kärreman, 2009; Wickert & Schaefer, 2015), we discuss alternative political economy theories that recognize the performative aspects of economic and accounting models, but which locate them in critical and reflexive frames.

From the outset of this review, we are indebted to Callon's insights concerning the performativity of economic theories, as they offer the broadest concept and frame (see Fig. 1, Callon, 1998a; 1998b; 2007; 2010). Callon argues that economic theories not only intend to represent reality but that, 'economics, with the multiplicity of frames of analysis and theoretical models that it develops, contributes to the constitution of the object that it studies' (2010:163). Elaborating on the performativity of economics, Çalıřkan and Callon (2009) identify processes of economization, which denote 'the processes that constitute the behaviours, organizations, institutions and, more generally, the objects in a particular society which are tentatively and often controversially qualified, by scholars and/or lay people, as "economic"' (p.370). Economization processes proceed from a broad definition of

'economics at large', which includes other disciplines and practices, including accounting (Vosselman, 2014). In the specific context of this paper, the economizing framework identifies the problem of electricity supply as a question of economics, rather than conceiving of it as a scientific, engineering or political issue.

The economizing frame can be further narrowed through a process of marketization (Çalıřkan & Callon, 2009; 2010). Çalıřkan and Callon (2010) argue that markets 'delimit and construct a space of confrontation and power struggles ...', creating spaces in which, '... (M)ultiple contradictory definitions and valuations of goods as well as agents oppose one another in markets until the terms of the transaction are peacefully determined by pricing mechanisms' (p.3). The next, and even narrower, frame involves processes of financialization, increasing the importance of financial actors and calculative devices both within and between organizations (Cushen, 2013; Vosselman, 2014).

Financialization elevates the particular performative role of accounting, as accounting calculative models traditionally privilege shareholder interests. The financial orientation is particularly strong in DCF, which purports to connect internal decisions on investments with interests of external investors. Indeed, finance theory argues that firms can be viewed as bundles of projects, with their total value determined by the sum of their DCFs (Copeland, Weston, & Shastri, 2004). From a performativity perspective, it can be argued that financial theories such as NPV, 'are actualized' as long as the 'conditions of felicity' (Callon, 2007, p. 321) are fulfilled. Some key conditions of felicity for the DCF model are the same as those supporting the Black-Scholes formula; namely, a dominant belief in the efficient markets hypothesis and '... a political culture in which economics was a useful source of legitimacy' (MacKenzie, 2007, p. 70). MacKenzie also mentions specific institutional and material changes which enabled the Black-Scholes formula to appear 'less unrealistic' (2007: 74). For example, short selling became more practical when institutional investors, such as pension funds, were prepared to lend their stock and when the New York stock exchange introduced stock-index futures. As becomes apparent later in our elaboration of CPE, the pro-market, neoliberal institutions of the recent privatization era were part of a wider neoliberal political culture. In the different political culture which was the pre-privatization period, DCF was less closely linked to financial and marketized frames. With the generating industry in GB under public ownership, DCF was promoted as the "correct" investment model, because it prompted decisions that might increase national economic growth (Miller, 1991) rather than maximize shareholder wealth, as supposed under neoclassical finance theory. In short, material and institutional factors can sometimes reinforce semantic and discursive factors,² whilst at other times, such as times of crisis, they may act against them.

Fig. 1 illustrates the relationships between these frames. Moving from the macro-level of economization into the more micro-levels of marketization, financialization and calculation, the arrows emphasize that frames are in recursive and reciprocal relationships. Although the calculation of NPV/DCF combines a myriad of issues, reducing them to a single figure (Miller, 2001), the model affects the more macro-levels of markets, the wider economy, and, as we shall argue below, the political and regulatory spheres.

2.1. The DCF and the mediation of negotiations between actors in the electricity industry

One of the strengths of the performativity thesis is that rather than viewing accounting as fulfilling merely a symbolic role in

² We are grateful to an anonymous reviewer for raising this point.

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