EDAMBA Journal

Thesis Competition 2013 Summaries

Editor

Gillian Wright

Foreword from the President

EDAMBA, the **European Doctoral programmes Association in Management and Business Administration** has the mission to support and facilitate cooperation by providing and managing a network to exchange information, disseminate best practices and raise the quality of doctoral education among its members in Europe and beyond. For the past quarter century, **EDAMBA** has helped the participating schools to increase the quality of their Doctoral programmes, as well as to create an environment of excellence with a European perspective, all the while pursuing diversity. In many ways it has proved to be an unparalleled forum of discussion to schools that have a long established tradition of doctoral education and also to those who have recently started this new practice. The ultimate goal is to have the **EDAMBA** network reach as far and wide as possible, while at the same time maintaining the integrity of the various programmes within the network.

Currently EDAMBA has 60 doctoral programmes as members of the Association coming from 24 countries. It is governed by the General Assembly, which elects each year an Executive Committee. The main current activities of the Association are the Annual Meetings, the Research Summer Academy, the Consortium on Doctoral Supervision, the Thesis Competition.

The Annual meetings have become during the years the main platform for discussing common problems and issues, discussing impressive changes in the doctoral landscape and promoting best practices among the Directors of Doctoral programmes in the association. The Summer Academy operating since1992 with its international dimension has been the privileged forum for dialogue on research paradigms and methodologies while building a strong scholarly network among doctoral students coming from a broad range of programmes and disciplines.

The Winter Academy launched in 2008 aims at improving the quality of doctoral supervision by fostering a dialogue among senior and junior faculty and developing competent supervisors for addressing the shortage of qualified faculty in Business and Management studies in the European Universities and Business Schools. In the steps of the Winter Academy, as a joint initiative between the EIASM and EDAMBA in shaping the new landscape of global doctoral education, EDAMBA runs a Consortium on the importance of supervision in doctoral education. A European Code of Practice for Doctoral Studies in Management and Business has just been published for consultation with our membership and wider community.

The Thesis Competition was first launched in 2003. It aims at distinguishing high-quality doctoral dissertations which have significantly contributed to new knowledge in all areas of business studies and management. The top-3 peer reviewed abstracts are given prizes and the short-list of selected abstracts is published in this EDAMBA journal. With this publication, we hope to contribute to the dissemination of distinguished doctoral dissertations from throughout our network in Europe and worldwide.

Dimitris ASSIMAKOPOULOS

EDAMBA President

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EDAMBA acknowledges the expertise, time and effort in the important review process of the 2013 EDAMBA Thesis Competition

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FIRST AWARD

Making Accounting Matter
A study of the constitutive practices of accounting framers

Charlotta Bay
Uppsala University

Abstract
Accounting has for long been argued critical to processes of financial responsibilisation. There is something almost seductive about the idea of accounting as a powerful and constitutive means, making people think and act in particular ways. However, this thesis demonstrates that in order to exercise influence on its environment, accounting first needs to be constructed so as to make sense to its users. As such, it argues that accounting and its assumed constitutive ability to turn people into financially responsible actors cannot always be taken for given. How to address this dilemma of making people responsive to accounting – hence making it matter – is the inquiry of this thesis.

A Background Story

Mission: Explain the Budget. This statement was found as an article headline , introducing the top news of the day in *Dagens Nyheter*[1], one of the major Swedish morning papers. The article revealed that the Ministry of Finance had engaged PR consultants to come up with suggestions on how to explain the government's financial policy to the general public. The consultants' task was to give advice on how to pedagogically package fiscal issues in terms of structure, content and illustrations so as to make them accessible not only to journalists, tax lawyers and accountants but most particularly to so-called less knowledgeable target groups. It was also disclosed that employees at the Ministry had attended communication courses arranged by consultancy firms, learning how to make the annual budget proposition more readable and financial arguments less complex. The

1 *Dagens Nyheter*, June 21, 2011; see also *Dagens Nyheter*, June 22, 2011.

news was framed as a scoop followed by an intense debate about the legitimacy of politicians using hundred of millions of crowns of taxpayers' money on communication advice.

There are many interesting aspects to this article. There is one implicit presumption, however, lurking about in the background of the article, to which I would like to draw your attention. Even though it is not explicitly spelled out, there seems to be a theory underlying the communication problems experienced by the Ministry of Finance. It implies that in order for financial information to turn heads and to come across as relevant, people first need to know how to make sense of its numbers, statistics, and vocabulary. However, this is a capability that seems not to be taken for granted. As not all people are believed to be capable of interpreting economic issues, concepts and numbers – at least not as they were intended to be interpreted – the way of designing them intelligibly into convincing arguments is consequently not always perceived by the Ministry as a straightforward activity.

The newspaper article serves as an illustrative take-off point for the thesis at hand, telling us a story not only about the complexity of representing financial accounts, but also that the way of doing so convincingly is assumed to depend on who is identified as their intended audience. On the one hand, the story confirms what has long been acknowledged within the accounting realm: that numbers, calculations and financial concepts are powerful since they are presumed to affect people's way of looking upon and acting in the world. On the other hand, it addresses one of accounting's perhaps less examined assumptions: that in order to matter and to make a difference to people, accounting information needs to be interpretable to its users. This thesis is an attempt to address this assumption more specifically.

The thrust of the thesis is not to discard the idea of accounting as a powerful producer of effects. Rather, the thesis examines those conditions that are believed to enable those effects to occur. In this way, it is hoped the thesis will open up a space, through a detailed study of four cases, where assumptions about accounting's constitutive power might be discussed and problematised.

The introduction is divided into four parts. The initial section gives a background account of how the issue of accounting's influential power has been addressed and looked upon in the accounting literature, providing a frame for the subsequent description of the story's dilemma of what it takes to endow accounting with such an influence, making it functioning as a constitutive means. In the following part, the reader is invited into the empirical world of the story. The thesis' four cases, constituting the story's illustrative examples, are all embedded in an everyday financialisation setting. They are used to investigate the activities whereby different actors translate accounting into people's private sphere so as to make it matter and influence their personal financial management. These actors are to be looked upon as the story's main characters and are here referred to as accounting framers. And finally, the last part reveals what came out of the thesis' investigations. Apart from summarising the results from each of the thesis' papers, it also provides the story with a condensed concluding discussion intended to point out the assumptions driving the idea of accounting as a constitutive means, and the conditions under which it is made to operate as such.

Introducing the Problem and the Aim

The Constitutive Turn of Accounting

> As accounting becomes more influential in everyday affairs, it is important for us to have a greater insight into the processes through which that influence is created and sustained (Hopwood 1994, p. 301).

Three decades have passed since Hopwood and colleagues in a series of articles introduced the idea of accounting as a constitutive means of social settings (e.g. Burchell et al. 1980, 1985; Hopwood 1983; 1987). Hopwood stated that accounting, in all of its manifestations, plays a significant part in organisational transformations and that "the importance of accounting's constitutive roles should not be under-emphasized" (1987, p. 229). To say that accounting is a means used to intervene, influencing ways of thinking and ways of doing, is not today a very extraordinary statement. Now, the constitutive turn of accounting (Asdal 2011) is well established in its social research field. Nevertheless, in its early years, it broke radically from the view that understands accounting as an impartial measurement activity concerned with providing useful information to interested parties in decision-making situations. Advocates of this latter perspective, elsewhere referred to as, for example, the correspondence view (Solomons 1978, 1991), state that "representational faithfulness and neutrality are characteristics of accounting numbers" (Solomons 1991, p. 288), stressing facticity, precision and objectivity as accounting's dominating trademarks.

However, pioneers of the constitutive view (e.g. Hines 1988), questioned this positivistic notion of accounting as a precise and apolitical representation of reality. They opposed to the idea of accounting numbers as "mirrors of economy" (Napier 2006, p. 456), presenting a pre-existing and independent economic world as it 'is'. In their view, by contrast, accounting is not just reflective of reality, but constitutive, contributing to the shaping of the environment it simultaneously portrays. As such, accounting might be said to serve rhetorical purposes (Arrington and Francis 1993; Thompson 1994;

Young 2003; Aho 2005), not merely used to inform but also to influence, persuade and manipulate people to look upon the world in certain ways (Carruthers and Espeland 1991). From the constitutive point of view, accounting is not only a technical practice used to report on economic activities, but also a social and political one, employed to intervene and transform human economic behaviour as well as public (Neu 2006) and organisational life (Hopwood 1987).

As noted earlier, several branches of the accounting field have long embraced the constitutive notion of accounting as a forceful producer of effects. One such branch, where a rather direct relationship between accounting and people's behaviour is recognised, is that of management control. The nowadays rather famous adage 'what gets measured gets managed' (Behn 2003) is based on the idea that measurement activities affect human behaviour, which – if true – "promises a perfectly controllable organization" (Catasús et al. 2007, p. 506). The faith that measurement and calculations can contribute to steer the organisation towards certain goals – however criticised (e.g. Nørreklit 2000) – has been an especially important argument for justifying and encouraging organisations to engage in strategic activities (Ward 1992; Bartlett and Ghoshal 1993). That involves, for example, the deployment of balanced scorecards (Kaplan and Norton 1992, 1996), which has extended the constitutive scope of accounting to also include non-financial accounts. Accounting in terms of measurements is, as such, believed to impact its environment.

Another area is concerned with how accounting technologies contributes to the ways individual accountability is constructed within organisations (e.g. Roberts, and Scapens 1985; Munro and Mouritsen 1996) and public institutions (e.g. Llewellyn 1998; Kurunmäki 2004). Processes of responsibilisation have been largely elaborated within this field; however, regardless of the multiplicity of studies, accounting seems to be acknowledged almost unanimously as key to the production of rational and responsible people (e.g. Roberts et al. 1985; Miller and O'Leary 1990; Sinclair 1995; Ahrens 1996). This relationship between accounting and responsibility follows from the premise that by providing forms of visibility, modes of classification, and techniques of calculation, accounting offers opportunities for the individual to compare and contrast oneself and one's performance against an agreed-upon norm (Miller 1994a; Boland and Schultze 1996). Thus, accounting serves as an important vehicle whereby people are given direction as to how to improve themselves. This implies that by exposing people to and engaging them in calculative activities, accounting contributes to making people responsible.

A third strand of accounting research where the constitutive view has been widely influential is the one dominated by sociologically power-oriented researchers. They developed Hopwood's original ideas further, inspired by the Foucauldian concept of governmentality (Foucault 1978). The governmentalists are concerned with the "construction of the governable person" (Miller and O'Leary 1987): studying broadly stated political programmes of disciplining people and controlling organisations, and how these programmes are enabled and introduced at the local level by various kinds of technologies (e.g. Miller 1990; Rose and Miller 1992; Hopwood et al. 1994; Power 1999). Accounting, in this technological sense, is considered a powerful constitutive device, believed to make these programmes work. There is, of course, a fourth research field where the constitutive role of accounting has been addressed, as well as a fifth, and a sixth, etc. The areas above constitute only a few examples and might be extended by a plethora of others: corporate social accountability, environmental accounting, intangible capital reporting, etc. – all providing their own illustrations of how accounting is enmeshed in processes of bringing about certain effects.

There is something almost seductive about the idea of accounting as a powerful and constitutive means, making people think and act in particular ways. It might allure us to assume that whenever accounting is put in place a specific effect is anticipated to follow. Or as differently put by Llewellyn and Milne (2007): "like a recipe, rule, guideline, template, protocol or law, accounting tells people how to do things" (p. 806). These are strong claims and, in my view, call for problematisation. Because, to extend the recipe analogy, to follow the instructions of a Swedish baking recipe presupposes an understanding of the precise meaning of a *decilitre* or degrees *Celsius*, which otherwise for most Americans would result in a disastrous cake. Similarly, to acknowledge and act upon accounting information as useful decision-making input requires a person endowed with an ability to extract the meaning of its figures and terminology. This is arguably not given by Nature and is only made to occur if users are taught how to read, decode, and interpret financial accounts accordingly. So even though financially reported figures mediate meaning in communication processes (Hall 1997), it presupposes that the communicator and the audience each possess something that functions as a codebook, and that these two codebooks are, at the very least, similar if not identical.

However, far from all situations meet this demand. When going beyond the borders of professional and organisational fields, entering into the world of people's everyday financial life, there are indications of discrepancies between the way that produced financial information is expected to be understood and the way in which that information is interpreted by its recipients. In a recent series of reports, commissioned by the Swedish Financial Supervisory Authority (hereafter FSA), it is concluded that "many adults struggle with basic calculations and lack an understanding of elementary financial concepts" (Almenberg and Widmark 2011a, p. 2). These findings are said to raise questions about the capability of Swedish households to make sense of financial information related to their own private finances, resulting in poor, and at times, devastating financial decisions. This, in turn, is claimed to create a dilemma of communication:

> Our results highlight the importance of acknowledging that quantitative information can be perceived differently by different consumers. When information is communicated in a way that requires good numeracy, it is practically speaking not very informative if the consumer is not adequately equipped to absorb that information (Almenberg and Widmark 2011b, p. 28)[2].

This discrepancy dilemma has previously been touched upon by Ezzamel et al. (2004), who claim that the effects of accounts are dependent on how they are interpreted by their users, and, to draw on Munro (1993), such an interpretation is not determined by the accounting inscription per se. This implies that due to their lack of intrinsic meaning, accounting inscriptions can mean different things to different audiences (Qu and Cooper 2011; see also Quattrone 2009), which consequently might undermine their constitutive power to make things happen.

Nevertheless, this is not to be understood as though accounting inscriptions and technologies are powerless or mute. Catasús (2010) acknowledges that indicators do indeed 'speak', however not solely by themselves, subscribing to the view that accounting is not automatically imbued with any general and essential significance to make people act, common to any kind of situation. Rather, such significance needs to be constructed, or as Chua (1995) would have put it, fabricated. Similarly, Oakes, Townley and Cooper (1998) argue that even though accounting is recognised as an effective means in bringing about change, this effect should not be taken for granted, concluding that "the process through which this occurs is more complex than much of the current literature suggests" (ibid, p. 258). Together, these objections indicate limitations to the constitutive power of accounting, which in turn might have implications for the possibilities of its various manifestations exerting influence on its environment.

The Dilemma of Making Accounting Matter

Although it nevertheless adheres to the constitutive perspective on accounting, this thesis follows these problematising tracks. It does so by addressing the role of accounting interpretations and how some actors assume that they must be taken into

[2] The quote is borrowed from Paper III in this thesis.

consideration in the process of making accounting constitutive. On the one hand, there is one kind of actors, such as the standard setting organisations FASB and IASB, who seem to work from the premise that accounting is exclusively intended to be read by "a rational economic decision-maker" (Young 2006, p. 596), often referred to as a *homo economicus*. To such a user, the interpretation of financial information is held to be uncontroversial with no explanatory measures needed. This is arguably a rather unfortunate and problematic conclusion, not least since it rules out all those potential others who are considered not to belong to this category of 'rational economic decision-makers', but who still are exposed to financial information.

This, on the other hand, indicates that there might indeed exist people to whom the meaning of financial accounts is not particularly clear. This idea is further supported by other actors, such as the FSA and its corresponding international organisations, who are said to have reasons to presume that a substantial part of the Western population suffers from difficulties in making sense of numbers and financial concepts. Given those situations, a dilemma arises regarding how to influence people's way of thinking and acting by means of accounting information. Their line of argument is that unless it is interpretable to its users, the likelihood of accounting functioning as a constitutive means is curtailed. How to address this dilemma of making accounting matter is the inquiry of this thesis.

The aim of the thesis is to examine how accounting is made to matter. To this aim, the thesis investigates the activities of those actors whose task it is to render accounting interpretable. This involves, more specifically, a detailed analysis of the practices whereby people's interpretation of financial accounts is addressed and worked on in order to make people receptive and responsive to accounting. The analysis is directed towards investigating two interrelated questions:

1. What constitutive practices are believed to make accounting matter and what specifically do they aim to achieve?
2. What assumptions about accounting do those practices imply?

Thus, the thesis is not only involved with delineating the assumptions and practices making up those constitutive activities, but also and perhaps more importantly, problematising some of the conditions under which accounting is said to be enabled to function as a constitutive means, affecting people towards particular ends. In this way, the thesis is hoped to contribute to the discussion about "the basis of accounting's persuasive power" (Chua 1995, p. 115) and to refine the understanding of how accounting is made constitutive.

Apart from its attempt to theoretically contribute to the accounting literature, the thesis might also be considered as widening the empirical scope of accounting investigation. Unlike the bulk of accounting research, the thesis moves the empirical focus away from investigating the accounting activities directed towards individuals at the professional/organisational level. By contrast, it targets the private sphere of people's everyday financial life, studying those practices that address individuals as actors in relation to their own finances – a point of investigation that has been disregarded or marginally examined (for exceptions, see e.g. Llewellyn and Walker 2000; Walker and Llewellyn 2000; Carnegie and Walker 2007a;b). By addressing issues of 'low finance' (Vargha 2011), the thesis also might be considered to add to the growing research field of financialisation. Further elaborating on the thesis' empirical relations is the issue of the next section.

The Empirical Setting

Financial Management in the Private Sphere

In spite of a growing understanding of accounting as something that has come to permeate everyday life (Hopwood 1994), previous research has, as Napier puts it (2006), "a tendency to view the actions and practices of élites as inherently more important than the life of 'ordinary people'" (p. 459). By consequence, most research concerning the impact of accounting has been conducted at the organisational level, studying how accounting representations, technologies, and vocabulary influence and change people's professional working conditions (Jeacle 2009). However, since accounting is claimed to mutate and migrate, change form and location (Miller 1998; Napier 2006), it also allows economic knowledge to intervene into spheres from which it has previously been excluded (Power 1992).

This proposes that accounting might not only be perceived as a purely professional phenomenon that inhibits accounting scholars from looking, as Miller (1994b) puts it, "beyond organisations as the exclusive level of research" (p. 1). Instead, it is encouraged to complement previous literature by studies of accounting's role in constituting society as 'economic' (Napier 2006) by moving the focus of scrutiny beyond, for example, the professional firm or manufacturing facility (Jeacle 2009). Hence, what is called for are further explorations of the interpenetration between accounting and society (Miller 2007; Mennicken, Miller, and Samiolo 2008) in the everyday life of 'ordinary' people. This thesis is a response to these calls.

Consequently, the thesis pursues the idea that accounting is a situated everyday practice, operating at *all* levels of society and that its analysis should not be restricted to the traditional arena of the professional organisation. It does so by studying how financial information is presented and conceptualised to address people in their role as *private* individuals in situations related to their own domestic financial management. More precisely, the thesis investigates the activities whereby people are believed to become financially refined in order to improve their ability to care for their own financial affairs. Apart from forming part of the private financial sphere of people's lives, the empirical cases in the thesis were more specifically chosen because they exemplify the difficulties that certain groups of people are presumed to suffer from in making sense of financial and accounting information. Even though questionable (sic!), such people are possibly more easily identified when we cross the borders of the professional organisation.

The empirical cases were also selected for their topicality. In times like these when headlines[3] declaring the confidence in the financial sector as being at an all-time low, people are still being asked to put full trust in investing their money in the financial market. This might seem odd, taking the recent American and European financial crises into account, and needs to be understood from a wider societal development. According to French and Kneale (2009), the last two decades have witnessed, as part of a more extensive financialisation of society, a privatisation of the provision of social welfare. National reforms and changes in pension arrangements (see e.g. Ohlsson 2007; Belfrage 2008; OECD 2008), as well as private welfare security increasingly conditioned by financial services, are said to have resulted in a "'massification' of household savings" (Erturk et al. 2008, p. 26), along with a "dramatic growth in financial intermediaries" (ibid), giving feedback on the calculations made by private investors. This on-going process is referred to as "the financialisation of daily life" (Martin 2002; see also Erturk et al. 2007; Langley 2007; 2008) and is claimed to require "new identities and forms of calculation from its citizens [who] must now take individual responsibility for their financial futures" (Froud et al. 2007, p. 340).

Not all citizens, however, are proven to be sufficiently equipped to live up to those new financial expectations. Hence, in order to remedy these deficiencies, measures are taken worldwide in terms of international as well as country-specific programmes of financial education (OECD 2005, 2009). In a plan of action produced by the Swedish FSA (Finansinspektionen 2007), it is revealed that financial education activities are presumed to be as most critical at those stages of life when the individual's economic conditions are changing. The FSA exemplifies these major shifts, which, for the purpose of this thesis, are divided into three phases on a lifetime axis:

- The *pre-adult* phase encompasses those years when the individual is presumed

[3] *Expressen* (Swedisch tabloid), October 9, 2011.

to stand on the cusp of independent adult life, starting up a household of one's own.

- The *midterm phase* incorporates the period when many people are believed to settle down, start up a family, and find themselves in need to make important investment decisions, such as buying a house or a car, for example, or provide for the children's future welfare.
- The *retirement phase* refers to the latter part of life when financial provisions are expected to have been made in order to secure one's pension.

These three phases are used to represent the thesis' areas of investigation. This means that each of the four papers addresses a financial dilemma belonging to one of the three lifetime phases. This is described further below in the section *Paper Findings and Concluding Discussion*.

In the thesis' papers, we are about to make acquaintance with a selection of actors whose activities are directed towards people whose private financial situation is considered as particularly vulnerable. According to the respondents' testimonies, this vulnerability should not primarily be understood as a resulting from people being disabled, incapacitated or mentally unfit to manage their personal finances. Rather, these people are considered as having not yet adjusted to the contemporary demands of managing one's personal affairs, and therefore impaired, by their inexperience or lack of awareness, in living up to these new expectations of a modern financially responsible citizen. This is claimed to have entailed far-reaching consequences. According to the OECD (2005), for example, there are a substantial number of Western people who are regarded as suffering from an untrained and therefore limited ability to interpret and respond to financial information, and who are unaware or unfamiliar with how to perform basic calculations as well as to engage in investment and budgeting activities. Hence, given such situations, it is proposed that financial information and financial management should be taught and explained to them by someone. This 'someone' constitutes the thesis' central character and is introduced in the following section.

Accounting Framers

In each of the subsequent papers, we are invited to follow a number of activities performed by various groups of accounting framers. An *accounting framer* refers to an actor who constructs accounting in such a manner so as to generate certain effects. More specifically, this involves activities intended to steer the way accounts are interpreted by others in order to spur and enable a specific behaviour to follow. The concept of framer borrows from Goffman's analytical notion of frame, denoting a defining means or a "schemata of interpretation" (Goffman 1974, p. 21) that regulates and governs the way individuals establish meaning and motivate action. The activities performed by accounting framers follow from this definition and can be divided into two respective sets: identification and design practices.

The *identification practices* are directed towards detecting and distinguishing different kinds of accounting recipients by categorising them according to similar sets of characteristics or issues at stake. The identification is motivated by the assumption that accounting recipients are heterogeneous, and therefore cannot all be addressed similarly. Moreover, the variety of recipients is also assumed to entail a diversity of ways of making sense of accounting information, including the one of not making *any* sense. Since the objective of the framers is to establish a specific kind of accounting interpretation, the *design practices* involve adjusting the construction of accounting information accordingly, so as to replace earlier interpretations, or the lack thereof, with the desired one. Such an adjustment is thought of being accomplished with respect to the recipient's characteristics. Hence, a (re-)designed presentation of accounts based on detailed knowledge of recipients is assumed to be key to the accounting framer's process of constructing accounting information so as to matter.

So then, what kind of accounting framers are to be found at the everyday sites where people are expected to be refined into financially responsible citizens? The occurrence of 'experts' is nowadays a widespread element in Western society. Furusten (2007) refers to this as the expertification of society, based on the notion that specialist knowledge has become critical as a consequence of increasing societal complexity. There is a common perception of the expert taking the form of a professional – such as a physician or a lawyer – whose expertise rests on highly abstract, scientifically based knowledge that requires related technical skills to be interpreted and codified (Larson 1990; Abbot 1998). There are professionals who might be considered accounting framers, such as standard setters, accountants, and auditors, who regulate and instruct the behaviour of organisational members. However, in this thesis, the professional is of minor interest. When we move the focus away from the financial conditions of organisational life to instead examine the measures taken to remedy the difficulties that people are said to encounter in their *personal* financial lives, another kind of accounting framer surfaces.

The accounting framer at issue here might be looked upon as a kind of *bricoleur*. The term is borrowed from the French verb "bricoler" which means to "to fix something ingeniously"[4], achieved by making creative use of whatever materials are at hand. As

[4] Oxford English Dictionary, Third Edition, March 2005, Online version March 2012: http://www04.sub.su.se:2409/view/Entry/261904. Accessed April 9, 2012. See also http://www.merriam-webster.com/dictionary/bricolage.Accessed April 9, 2012.

opposed to the professional who is defined by his/her exclusive knowledge, the expertise of the bricoleur is rather to skilfully combine and fit together heterogeneous kinds of knowledge and techniques into, what Rose (1998) calls, a "complex know-how" (p. 86), assembled to best suit the situation, recipient or purpose in question. This kind of accounting framers tend to be found in sectors such as information services, the media, consultancy firms, public authorities, and financial/business services, whose task it is to actively shape and/or change people's habits and views on private financial issues. By virtue of their sophisticated know-how, serving as a kind of translation mechanism (Miller and Rose 1990), the accounting framers are enabled to identify and address different kinds of accounting recipients, and translate their daily financial worries into individually suitable vocabularies that render the problems not only interpretable but also manageable.

In this thesis' papers, we are about to meet various sorts of accounting framers, but all of them are characterised by the bricoleur kind of expertise. The papers examine how this expertise is employed to translate accounting into people's everyday financial lives so as to make it matter. In the first paper, we encounter a group of *public civil* servants whose activities are intended to influence the attitude towards private financial management among Swedish high school students. In the second one, we are introduced to a televised *financial makeover programme* and its exercises to transform severely indebted people, led by two financial advisors. In the third paper, we are informed of how *telemarketing consultants* at a Swedish pension insurance company are instructed to render financial arguments to different kinds of pension savers in telephone conversations. And finally, in the fourth paper, we return to the public civil servants encountered in the first paper, and make a comparison of their efforts to understand and translate the concept of 'financial literacy' with those of professional framers constituting of *audit committee members*. Apart from addressing issues of people's private financial affairs, the choice of accounting framers is also motivated by the dilemma that the framers are said to experience when communicating financial information to people presumed to be less financially aware or experienced. A more thorough description of the respective papers is presented further below in the sections *Methodological Reflections and Paper Findings and Concluding Discussion*.

Finally – a point of clarification. As this study does not examine the accounting *recipients* directly, it is beyond its scope to determine whether or not the framers' constructs of accounting actually worked as expected, or how the intended audiences were affected by the activities performed by the various account framing actors. As such, the thesis is not engaged in investigating any recipient effects. This entails that the thesis is strictly concerned with the accounting framers' presumptions of how they believe accounting need to be rendered in order to be, in their view, successfully interpreted by its users. As such, this thesis takes a sense-giving perspective, as elaborated by Gioia and Chittipeddi (1991), isolating one party's efforts to influence the way another party interprets and makes sense of accounting information.

Paper Findings and Concluding Discussion

In this concluding section, I wish to return to the aim of the thesis, that is, *to examine how accounting is made to matter*, and to delineate how the subsequent papers help, however from different angles, to address its accompanying investigative questions. The first one addresses the accounting framers' activities:

- What constitutive practices are believed to make accounting matter and what specifically do they aim to achieve?

As such, it is concerned with the techniques, methods, and means whereby accounting is alleged to be made interpretable, as well as what is expected to come out of these practices so as to accomplish that. The second question is directed towards the framers' perception of accounting:

- What assumptions about accounting do those practices imply?

Investigating the accounting framers' arguments motivating their choices of activities reveals how accounting is perceived and looked upon, and signals what makes accounting be designed in a specific way for one recipient but yet differently for another.

Based on my reading, the following sections give an account of how each of the papers attends to the thesis' aim and investigation questions, introduced by a short recapitulation of their respective empirical settings and findings.

Paper I

Framing Financial Responsibility: An Analysis of the Limitations of Accounting

The first paper, referring to the early stage of adult life, investigates how issues of private financial management are introduced to high school students. The paper analyses the classroom activities of a national high school tour, performed by a group of civil servants, forming part of a wider government-initiated financial education programme, aiming at enhancing the Swedish citizens' financial intelligence. The analysis, informed by framing theory (Benford and Snow 2000), reveals that accounting devices, such as budgets and calculations, are presumed to be of no or minor instructive assistance due to the students' practical financial inexperience. Instead, it is argued that before any number-oriented accounting practices can be introduced to the students, a choice-making discourse needs to be established. By engaging the students in exercises, filled with morally complex dilemmas, they are forced to reflect upon their own ways of reaching financial decisions, and discuss the consequences that those decisions entail. This is believed to provide the students with a rational attitude that is claimed to be necessary for future financial decision-making activities.

Here, the accounting framers' are engaged in design practices, although not directed towards accounting as such. Rather, accounting is here worked on in terms of being deliberately ignored and *not* used, since it is said to risk making the students lose interest as a result of their unfamiliarity with accounting tools and financial concepts. The activities of the accounting framers are therefore not primarily intended to teach the students how to read and write accounting – at least not initially – but rather to endow them with a rational choice-making frame of mind, making them aware of optional ways of reaching decisions. By linking the students' interpretation of financial management to the idea of choices, and calling these choices decisions, the accounting framers attempt to establish an understanding of financial decision-making as being synonymous with making choices. This in turn is believed to serve as a foundation for the students to eventually become appreciative of accounting as a means for solving decision-making dilemmas.

The accounting framers' activities are thought to be of a preparatory kind. As such, they might be said to belong to a 'pre-accounting' phase, where accounting is temporarily abandoned in order to prepare and make the students ready for accounts. In the absence of accounting (Choudhury 1988; Catasús 2008), the activities are instead directed towards a (re-)design of the students' mind-set, claimed to constitute a precondition for students to recognise the purpose of engaging in accounting practices. This implies that accounting is perceived as requiring a rational user who understands accounting as a way of making choices. Without such an understanding, the prospects for accounting to be acknowledged as an activity or a tool to influence people's decision-making activities are assumed to be limited.

Paper II

Makeover Accounting: Investigating the Financial Edutainment of Everyday Life
The second paper relates to midterm life, and examines how a televised makeover show renders financial numerical accounts conceivable to severely indebted participants. The paper starts off from the premise that in cases where individuals are believed to be impaired in their ability to read and interpret financial numbers, communicating them in their numerical form is assumed to be of no relevance. Hence, by analysing

the programme's meaning-making activities, through the lens of Hall's theory of representation (Hall 1997), the paper demonstrates how numbers, through a series of visualisation exercises, are consequently translated into other representations corresponding to the 'reality' they are alleged to represent. These representations refer not only to physical objects such as expensive jewelleries or motorbikes, but most importantly to the emotions and impulses underlying the participants' irresponsible behaviour, believed to trigger their overconsumption. Once the numbers' 'real' sources have been recognised, the participants are considered prepared to learn, by means of valuation exercises, how to re-translate the 'reality' referents back into their initial form: numbers. Thus, it is assumed that in order to establish a basic foundation for interpreting numerical information, financial accounts require a round-trip makeover from numbers to 'reality' – and back into numbers again.

Here, the accounting framers' activities are also concerned with design practices, which, in constrast with the first paper, are directed towards re-constructing the appearances of numerical accounts into taking the form of physical objects or emotional states. The practices of re-presenting financial numbers begin in a contextualisation, intended to establish a link between the numbers and the participants' own 'reality'. Being made aware of the numbers' origins in 'reality' is claimed to make the participants *see* and *feel* what the numbers stand for, serving as a precondition for making them matter. However, and perhaps most interestingly, the accounting framers' designing activities do not cease with establishing a convincing explanation of the numbers' underlying problematic. Instead, the re-presenting activities continue, although with a re-directed focus towards teaching the participants, by means of budgets and comparison activities, how to understand an improved behaviour in terms of numbers. This is believed to enable the individuals to eventually read and react to financial numbers as numerical inscriptions, without having to make a contextualised detour.

The numerous design activities indicate that accounting is perceived as a practice that might be set into action, an on-going process that continuously unfolds as the programme proceeds. This suggests a renegotiation of accounting boundaries, emphasised by Miller (1998) stating that "there are no general principles by which one might be able to arbitrate as to what should be inside and what outside accounting" (p. 619). Rather, by using whatever design is at hand, the accounting framers stretch or even erase any border in the search for what might be considered suitable for re-presenting financial numbers, and most importantly, continue to do so until a 'satisfactory' interpretation of their meaning has been established. Hence, what constitutes accounting becomes an empirical question, ultimately motivated and determined by what is believed to make accounting matter.

Paper III

Accounting for Inclusion: Constructing User Relevance to Private Investors

The third paper addresses a dilemma belonging to the retirement phase, studying the issue of how to include different sorts of people with various needs for financial information. Informed by theories of categorisation (e.g. Potter and Wetherell 1987), the paper examines the means whereby telemarketing consultants at a pension insurance company determine how financial arguments are believed to be convincingly presented in order to influence the pension decisions made by different kinds of saver characters. The findings demonstrate that the company's customers are divided into two different slots based on their estimated level of financial sophistication, each accompanied by a specifically elaborated script for communicating financial information. The analysis reveals that in order for financial accounts to come across as relevant to the less sophisticated pension savers, far-reaching translations need to be made, whereas nothing of the sort is considered necessary in the case of the other group of savers.

Here, the accounting framers are involved in both identification and design practices. The identification of different pension savers is done by means of categorisation, segmenting the customers according to two kinds of saver typologies: sophisticated vs. unsophisticated savers. However, the categorisation is mainly done in order to distinguish the less sophisticated, since their interpretations of financial information are presumed to require a re-designed communication script. The paper demonstrates that in order for financial information to make a difference to people who are governed by other saving motives than economic investments, an individualised relevance detour is believed to be required. This means that the framers need to contextualise the information in accordance with the specific interests of the customers, connecting and translating it so as to matter and make sense to its intended users.

The rather uncontroversial assumptions held about the sophisticated saver are worth noting. S/he represents a rational decision-maker who is not only presumed to master financial labels and numerical, quantified representations, but who is also motivated by a rationale supporting the optimising of economic efficiency and growth, freed from ethical and moral considerations (cf. Young 2006). For such an individual, financial information is said to need no design modifications, since s/he is assumed to already have grasped the meaning and purpose of financial accounts. This suggests that accounting is perceived as having an 'ideal' design, a standard format that, if interpreted 'right', requires no context. Such a principled view of accounting entails consequences for the accounting framers' activities. It is hence from this accounting yardstick, functioning as an evaluative criterion, that the pension savers are assessed, identified and categorised as more or less financially sophisticated. It is also, consequently, from this norm that all other accounting designs depart and are re-modified.

Paper IV

Situating Financial Literacy

The fourth paper is different. In contrast to the other papers, which take place within the private sphere of people's everyday life, this paper makes an attempt to extend the analysis to also incorporate an empirical illustration of how accounting interpretation is thought of and played out in the organisational sphere. Informed by literacy theory (Street 1984; Gee 2000), the paper analyses two empirical settings in which different framers – public authorities and regulatory bodies respectively – attend to the concept of 'financial literacy': (1) in high schools, and (2) in audit committees. The former case examines financial education for high-school students and draws on the empirical material of the first paper. The latter case investigates the efforts made to comply with the demand on incorporating a financially literate member in audit committees. Even though the two cases, arguably, constitute extremes on a continuum between illiteracy and literacy, the study reveals that the issue of financial literacy is contested in both settings. By investigating different areas of society where it has been addressed, the paper seeks to problematise prior research on the issue by disentangling the notion of financial literacy from the assumption of a singular capability that, when gained, automatically affects people's financial practices.

The paper demonstrates that the literacy framers' first focus is to identify what financial literacy is. Defining financial literacy as an individual skill-based competency serves as a point of departure from where behaviours deviating from this literacy norm can be identified, addressed, and improved. The definition helps to point out groups of people, such as in the case of high-school students, where financial literacy is said to be absent, and is assumed to mobilise edifying design practices aimed at remedying this void of skills. However interestingly, when operationalised into the high-school classroom, the definition of financial literacy is modified. Rather than being addressed as a skill-based competency, it is translated into a matter of introducing a financial choice-making attitude. In the audit committee case, financial literacy, referred to as a competency, is already assumed to have been acquired by the committee members. Consequently, in order to detail the criteria for serving as an audit committee member, the literacy definition is specified further, giving precedence to outside experience of senior management, enabling a measurable distinction to be made between different candidates. Contrary to earlier studies, the paper concludes that financial literacy is an unstable concept that needs to be studied in practice, since what constitutes it varies with time and place.

Even though acted upon differently, both cases start off from a perception of financial literacy as a capability or an experience you either have or do not have. This implies an autonomous view of literacy, talked about in terms of *absence* or *presence*, which irrespective of time and place can be used to differentiate illiterates from literates. This absence/presence distinction is in turn determinant of how the framers' design practices are worked out. In case of its absence (high school), financial literacy is designed and constructed so as to enable people to take part and to be *included* in the financial discourse of society. Conversely, in case of its presence (audit committee), where people are already considered basically literate, financial literacy is broken down into specified constituents where (here) outside experience is given precedence, facilitating certain individuals to be disqualified and *excluded*. However, since experience is considered as a matter of individual qualifications and beyond the framers' scope of influence, no design activities are assumed to be required.

Although emphasising different aspects, framers in both cases conclude that financial literacy is something that indeed can be defined, spotted and even measured. In line with the view on accounting in the third paper, it is suggested that literacy has an autonomous, 'ideal' meaning from which deviations as well as distinctions can be singled out. However, the yardstick is used for different purposes. Thus the paper demonstrates that the concept of financial literacy is employed in both settings, although defined, problematised, and operationalised differently.

The table below delineates a summary, albeit non-exhaustive, of the core aspects presented in the thesis' papers. They all address the issue of how accounting is made to matter, although they differ in terms of accounting recipients and framers, as well as of constitutive practices and the implications that those practices entail for how accounting is perceived.

Paper	**Accounting recipient**	**Accounting framer**	**Practice focus**	**Practice aim**	**Accounting implication**
Framing Financial Responsibility	High school students	Public civil servants	Design of users	Introducing a choice-making discourse	Accounting as absent
Makeover Accounting	Indebted TV show participants	Makeover TV show	Design of financial numbers	Establishing links between numbers and 'reality'	Accounting as a continuous practice of re-presentations
Accounting for Inclusion	Pension savers	Telemarketing consultants	Identification of savers	Categorising savers based on their financial sophistication	Deviations from an 'ideal' accounting user
			Design of financial arguments/information	Constructing financial communication scripts connected to saver categories	Contextualised deviations from an 'ideal' accounting format
Situating Financial Literacy	High school students vs. Audit committees	Public authorities vs. Regulatory bodies	Identification of financial literacy	Distinguishing illiterates/literates for inclusion/exclusion	Autonomous view on literacy
		Public civil servants vs. Audit committee members	Design of literacy	Constructing vs. awaiting literacy	Situated view on literacy

Table 2: Summary of Thesis Papers.

Concluding Discussion

This thesis departs from the notion that accounting information indeed produces effects, although only insofar as it is constructed to be interpretable to its intended audience. The idea that accounting effects result from how its design or construction is interpreted, inevitably raises a concern of a more fundamental kind, namely: *What counts as accounting*? The issue of accounting's borders, limits, and margins (e.g. Power 1992; Miller 1998; Catasús 2001) has been widely addressed in the accounting literature. On the one hand, the numerical metaphor of accounting has been claimed to have grown so dominant that the notion that accounting is numbers is almost taken for granted (Morgan 1988). However, on the other end of the accounting spectrum, one finds Arrington and Francis (1993) arguing that accounting is a "ubiquitous human practice, something that all of us do in diverse cultural, social, political, and economic settings" (p. 107). The findings of this thesis confirm both of those views, and also link them together. In these very last pages, I wish to elaborate on this issue, since both views play critical roles in the process of making accounting constitutive.

The thesis' findings indicate that accounting framers seem to adhere to the idea that accounting has a principal format from which all other accounting translations depart. This format can be thought of as an ideal mode of expression, or a basic language: it has its own numerical letters, financial vocabulary, calculative grammar, and choice-making discourse. I call it, for the purpose of the story to be told, 'Accountish'. Aho (2005) claims that this form has dispersed itself through society, becoming a kind of contemporary lingua franca: a vehicular language that might be used as a means for economic communication irrespective of space, time or national mother tongues. However, in order to be spoken, read, written, and listened to, Accountish is assumed to require a user who thinks and acts as a rational decision-maker (cf. Young 2006), or a *homo economicus*[5]. When this condition is fulfilled, Accountish is believed to become interpreted and employed properly, which paves the way for bringing about effects.

Like other languages, Accountish is built upon a set of codes (cf. Llewellyn and Milne 2007) and needs in order to be practised, decoding. However, the complexity of the codes embedded in Accountish prescriptions may come out as rather inaccessible to the uninitiated since it requires a certain deciphering ability, a kind of Accountish literacy if one likes. This thesis suggests that all people are not disposed in a *homo economicus* kind of way; neither are they equipped with Accountish literacy. And even though they might have picked up on a few words and phrases here and there, these groups of individuals

[5] "Unlike his uncle, Homo sapiens, H. economicus is unswervingly rational, completely selfish, and can effortlessly solve even the most difficult optimization problems" (Levitt and List, 2008, p. 909).

are basically characterised as more or less insensitive to Accountish scribbles (cf. Kirk and Mouritsen 1996). Hence, unless it is interpretable, Accountish is feared to become meaning-less, and hence effect-less.

Nevertheless, in order to make sense to those people who do not (yet) master its principal form of expression, Accountish might, like all languages, be translated into other ones. In order to convert Accountish into different terms, Arrington and Francis (1993) argue that it first needs to be freed from identification with its original form since such a constraint otherwise would limit the giving and taking of accounts to only those individuals competent and literate with respect to that particular language. This is assumed to require an interpreter – here in the guise of an accounting framer – whose task is to make Accountish connect to the novice in ways that infuse Accountish representations with significance, relevance and meaning. The implicit idea is, as Blumer (1969) points out, that people react to things based on the meanings that these things have for them.

These connecting kinds of translation activities are in the thesis referred to as constitutive practices, which are believed to make Accountish interpretable to a less economically rational recipient. The practices distinguish and identify the non-rational users from the rational ones (e.g. Paper III and IV), and re-design Accountish in terms of its representations (e.g. Paper II and III), link it to its 'reality' referents (see Paper II), and provide it with a choice-making discourse (see Paper I). This is believed to endow Accountish with a credible and substantial body from which its signs are made interpretable. Like this, the criteria for what can count as Accountish ultimately become a matter of time and space, allowing Accountish to be improvised and re-made so as to adapt to the demands and conditions of the local context of which it forms a part (cf. Miller 1998).

As concluded by the Accountish story, the constitutive potentiality of accounting is not taken as a specific quality or ability that accounting naturally possesses and that, by definition, causes people to think and act in certain ways. Rather than being perceived as a cause, the constitutive power of accounting is instead thought of as a result, an outcome or an effect, following from whether accounting is successfully assembled to make sense to its users. This entails that in the process of making accounting constitutive, something has to be done to it *before* the effect is achieved. Even though the practices of the accounting framers ultimately aim at making up a rational user who eventually might master accounting's basic format as its native tongue, *the path of getting there requires an innovative representation detour*. Hence, the enabling of accounting that matters does not allow any accounting borders to be closed, but rather requires that they be continuously open.

SECOND AWARD

Ethics in Strategic Management:
An inquiry into Otherness of a Strategy Process

Henrika Franck
Hanken School of Economics

Abstract

Strategic management and ethics impose contradictory pressures on managerial sensemaking. Using concepts from Paul Ricoeur's philosophical work as a theoretical lens, this thesis analyzes a longitudinal data set, produced within strategy meetings and interviews in a multinational corporation undergoing a radical change process. It induces a model of ethical sensemaking in strategic management, founded on the processes of irony, compromise and conflict. The thesis demonstrates how the ethical can become possible and tangible in practice. Whereas normative business ethics literature has focused on how strategy is fair, leads to good deeds or is made by virtuous people, this study suggests that ethics is not something separate from the day-to-day, or moment-to-moment activity.

Introduction

> "If another were not counting on me, would I be capable of keeping my word, of maintaining myself?"

Paul Ricoeur (1992:341)

In this thesis I examine the relationship between ethics and the strategy process in an organization. More exactly, I focus on the ethical subjectivity constituted by how people in the strategy process see themselves as subjects in relation to their sense of responsibility for themselves and others. In bringing strategy and ethics together in this way we can talk of an ethos of an organization. What distinguishes this thesis from many empirical studies in organizational ethics is its refusal to assume even the possibility of cohesiveness in such an ethos. It takes strategy processes as an empirical starting point and analyses what is being observed as a dialectic between basic experiences of "sameness" and "otherness". It doesn't involve ideas of fair versus unfair behaviour or the explicit awareness and recognition of moral issues. What is does, is to find ethics as an individual's ongoing experience of making choices about what to do in the institutional context in which this activity is situated. In so doing it brings into question the very idea of separating individuals and institutional contexts, for as found in the philosophy of Paul Ricoeur (1992), it finds ethics less a study of moral norms than the transcendental basis for identity constituted in experiencing what is other than, or beyond, oneself. Ethics is inherent in the identity of a human being, and cannot be a separate or objective part of human life.

The general question this thesis raises is how this subjective ethics is enacted in strategy work. One response is through the notions of sameness and otherness. The preservation of sameness is the basis for most strategy research and practice, not least in emphasis on setting aims and compliance. My aim is not to criticize this underpinning of strategy, but to offer a way to consider strategy as proceeding from the dialectical identity and inherent ethical condition of the people involved in the doing of strategy. As such, difference is as constituting as sameness. I construct a theoretical framework and use it with empirical data gathered within strategy meetings and interviews in a multinational corporation in the midst of a strategic change process. I argue that although otherness is an inherent part of human life, it is repressed in the strategy discourse. Managers are ethical agents but can in strategy work only be "for the other" by acting through a strategic aim that can never live up to that demand. This has implications both on strategy research and ethics research. Whereas normative business ethics literature has focused on how strategy can be fair, lead to good deeds or be made by virtuous people (or otherwise), my study suggests ethics cannot be separated from the day-to-day, or moment-to-moment activity to ascertain such 'effects' or 'causes'.

The findings suggest that the ethical task of relating to one's peers, superiors and subordinates as 'others' rather than as something that has to be made the same as us, or put to our service, is at the same time alien to the strategic aim, but can be coped with. Such coping appears in moments of irony, compromise and conflict, as it gives the means to navigate between reciprocal sympathy and goal-compliant norms. There is, then, an experience of contradiction between the aims that leads to an ongoing balancing between them. Ethics is not about compliance with rules or standards, but the capacity for or an expression of self-production undertaken publicly with otherness. This is different from most work on business ethics, as it amounts to avoiding claims to truth or objective-centered activity by which one could generate definitions and definitive orders. Ethics demands that we continually question the impetus and manner in which we are inevitably and factually disciplined, through the exercise of reason of the kind predominating in strategy practice.

Otherness in strategy

There is a growing interest among scholars to examine ethical issues inside organizations, and much effort is spent trying to understand how individuals solve ethical issues at work. It is debatable whether ethics is an individual or an organizational issue. Some argue that it is individual (Soares 2003, Watson 2003), and others claim that structures and ethics are linked (du Gay 2000). The latter idea not only presumes that ethics informs organizational practice, but also leads to research that assumes that individuals in an organization can be studied by an external observer who determines what is 'right' and what is 'wrong' (Clegg, Kornberger and Rhodes 2006). There is, however, a recent interest in questioning aspects of this objectivist approach (Willmott and Weiskopf 2011, McMurray, Pullen, Rhodes 2011, Painter-Morland 2008, Kjonstad and Willmott 1995, Paine 1994, ten Bos 1997, Andrews 1989).

The starting point for this perspective is that a moral being knows that there are good and bad things, but it doesn't mean knowing for sure which things are good and which are bad (Bauman and Tester 2001). In this work, I argue, following Ricoeur, that the ethical is a structure of subjectivity and that ethics constantly presents itself to us as we live our daily lives. It is, thus, in a very real sense our lived reality, whether we choose to accept it or not. It is up to us to make the choice to accept it and take it upon ourselves, as a desire for the good of the other. Otherness is the basis for identity of an individual who aims to 'live the good life' and is inherently ethical.

But in strategy work, there can be tensions to live up to this ethical task. Strategy is often conceived to be a rational technique for an organization to meet challenges and succeed in changing business environments. The various strategic schools; the 'design' school (Andrews 1971), the 'planning' school (Ansoff, 1965) the 'positioning' school (Porter 1980) and the 'vision' school (Hamel and Prahalad, 1994) all embrace the idea that a supreme end that is conciliated by a person or a coalition drives strategy. There is an underlying assumption that some individuals determine the strategic objective and a vision that must be accepted and enacted by others. Durand and Calori (2006) call this the 'end prevalence dimension of sameness' that is illustrated by opportunism and goal-compliance (Ghoshal, 2005).

Top management has a strategic intent and communicates what they see as the preferred future position of the firm, and this should guide the actions of the agents by means of selection and retention (Lovas & Ghoshal 2000). The strategy occurs via organizational members whose actions conform to leaders' views to achieve the strategic intent (Hamel & Prahalad 1989). Organizational members are left to be goal-compliant in order to reach ambitious collective objectives. This view on strategy can be seen as relying on the notion of sameness, where the aim is to unite both the organization and its stakeholders under the same objective formulation. Sameness, in all levels of identity construction, corresponds to what remains intact – unchanged, i.e. the intrinsic dimensions that define the individual, group or institution as recognizable through time. Sameness posits itself against otherness in clear terms – that is, based on the persistence of difference; sameness is related to otherness because what 'is' the case is always in relief from, rather than separate from, what 'is not'. As a philosophical notion, sameness expresses itself through two behavioral aspects, in theory as well as in practice. First, what can be called the 'end prevalence' dimension of sameness that emphasizes an entity's self-centered ends over both the deployed means and pursued goals of others. Second, sameness manifests itself through the propensity of a change not to alter the core traits of an entity, regardless of the change's consequences for others; self-concern naturally takes precedence over the concern for others.

Yet there is a tension here because otherness creeps in. Paul Ricoeur (1992) saw identity being formed in the relation between selfhood, otherness and sameness, and for him, 'other' is not just a simple antonym to 'same' like 'other than self' or 'contrary', but otherness is constitutive of identity as such. In other words, otherness is both a comparison when defining identity and an integrative part in forming it. Selfhood reconciles and ties the self to the other through commitment and promise. Ricoeur distinguishes between three levels of otherness; otherness from the institution, otherness from the other person, and otherness from oneself. In all such identity is a condition of reciprocity and so, for Ricoeur, ineluctably ethical: identity is sustained insofar as others' lives are considered of equal value and interest to one's own. This brings up the dilemma of 'the other's' mind – sameness is being inside my own consciousness, within my own will. Otherness is outside my mind and untouched by my own will. The ethical task of life is to "live the good life, with and for others, in just institutions" (Ricouer 1992:172)

In contrast to the sameness-ideal, otherness makes the agent subsume his or her goals under others' capacity to accept them. Hence the tension between sameness and otherness in strategy work. The strategic aim gives the one who decides upon the strategy a certain status over the person to whom the obligation is owed. The one who gives the promise of implementing the strategy is counted on and his or her self-constancy is made responsive to this expectation. In the moment of commitment to the strategic aim of the organization, managers either arbitrarily assume a constancy in their feelings which is not in their power to establish, or they accept in advance that they have to carry out actions which won't reflect their state of mind. They are either lying to themselves at the moment of commitment or they know they will be lying to others in the future. This is where Ricoeur offers his notion of practical wisdom: "Practical wisdom consists of inventing conduct that will best satisfy the exception required by solicitude, by betraying the rule of the smallest extent possible" (1992:269). Otherness pays regard to the ethical dimension of any human collaboration and practical wisdom is the ability of an agent to understand the distinctive nature of the other. It is primarily an individual characteristic, but it manifests itself in organizations through moral exemplarity and reciprocity.

Most traditional approaches to strategy research have tended to rely on sameness – the strategic aim is to unite the organization and its members under the same umbrella, collectively, aiming at a common goal. The ethical on the other hand embraces otherness and a concern for others takes precedence over a concern for the self. Sensemaking serves as a platform to understand how ambiguity and uncertainty lead to action in strategy work. Managers constantly make both strategic and ethical choices in their work; sensemaking about the strategic aim and the otherness of ethics is ongoing and never stops, but it is bound to find relief in some collective sense.

This thesis focuses on how managers make sense of the ethical in a strategy process characterized by a strategic aim. Thus, I am able to explore links between how individuals and groups receive the strategic aim and the unpredictable nature of the ethical otherness. I report on the findings from a qualitative case study that considers how the strategic aim changes when sensemaking of the ethical is processed. In line with an interpretative approach, a sensemaking perspective is used to develop a model from the empirical data to account for these findings. I also try and understand if there is a possibility to find instances of practical wisdom in the midst of conscious and unconscious choices. The research question I pose in this thesis is:

- How are the strategic aims and ethics enacted in an organizational strategy process?

In the thesis I seek to construct a theory of ethical sensemaking in strategic management, and thereby contribute to the development of a better understanding of strategy by examining how managers make sense of change initiatives through consideration of the "other".

Methodology

The empirical data used in this study was collected in 2007-2008 at a Nordic stock-listed company I shall refer to here as ICE (all names are pseudonyms). ICE received its start in the late 1990s, when two state-owned companies were merged into a new private company that was soon after listed on the stock exchange. After the Initial Public Offering (IPO), the new company's share price fell rapidly and the organization was in crisis. No vision was in place for steering the new company, the components of which had previously operated in a quite regulated market, towards its new competitive, free market operating environment.

In 2000, a new CEO was appointed who initiated radical changes. The first goal was to change the cultures of both merging companies, which were characterized by state-owned company bureaucracy and a civil servant mentality. “Individual initiative” was a key issue, pushing people to “think out of the box” or “run the extra mile for the company”. At the time, ICE consisted of a corporate headquarters and seven business units. As part of the change, the business units were granted more responsibility, with the ultimate goal to make some of them eventually work as independent units. Another main strategic target was growth. Since 2000 ICE succeeded in growing substantially, purchasing new companies in the Nordic countries and the Baltic Rim. ICE carries out operations in 18 countries today.

I began research work at ICE in August 2007. At this time many change initiatives had already been implemented in the company, including various training programs, an active re-structuring of the organization, the introduction of new performance monitoring practices and sanctions for sub-par performance, and a reordering of key people in management teams. The first top management meeting I attended was a two-day strategy away-day, where the goals for the next year were presented. The last meeting attended was in April of the following year.

This process orientation led us to employ grounded theory methods for the study of the experience of change processes, reliant as it is on both process data and process theory (see e.g. Orton 1997). Accepting the limitations of the methods and their snippets of static representation, they nevertheless offer a means to understand how emergent talk and actions can lead to the unfolding of collective endeavor. They also allow us to study how understandings unfold through time and how the experience of time itself changes in the process. Suddaby (2006) presents some of the challenges of grounded theory and we also acknowledge the deeply interpretative base for using this method. We aim at explaining in detail how we have iterated between our data and existing theory to build our model of ethical sensemaking.

Data collection and empirical setting

This study relies for the most part on observations made during ongoing negotiation of strategic priorities in meetings. I compliment this information with insights gleaned from interviews and documents.

Observation: Observation data were gathered over a five-month period in several top management team meetings and in three business unit management team meetings. Some meetings were recorded and transcribed, while at notes were taken, very quickly writing down what was said.

Interviews: 19 managers representing top management and middle management were interviewed. The interviews took place during work hours and averaged one hour in length. They were all recorded and transcribed verbatim.

Documents: These primarily consist of public documents from ICE and newspaper articles.

Figure 1 illustrates the timeline of ICE's change initiative and my research. Table 1 gives a summary of the sata set.

Figure 1 Timeline of ICE's change initiative

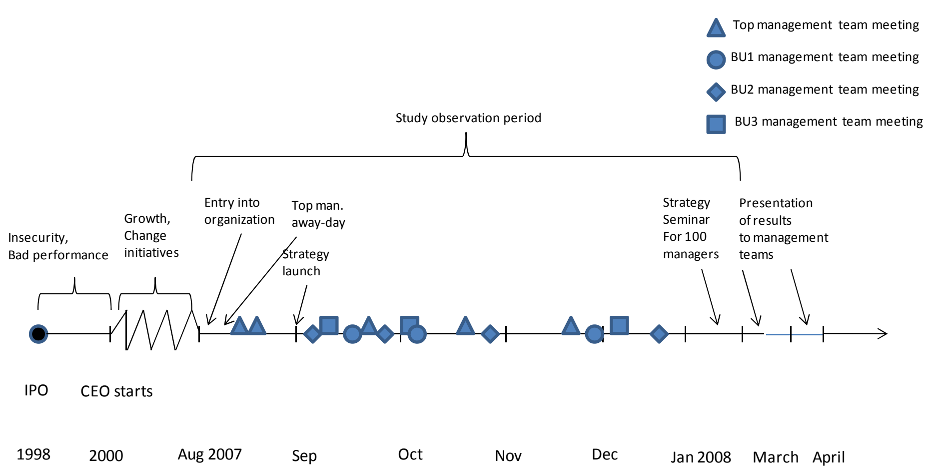


Table 1 Summary of the data set, excluding documents

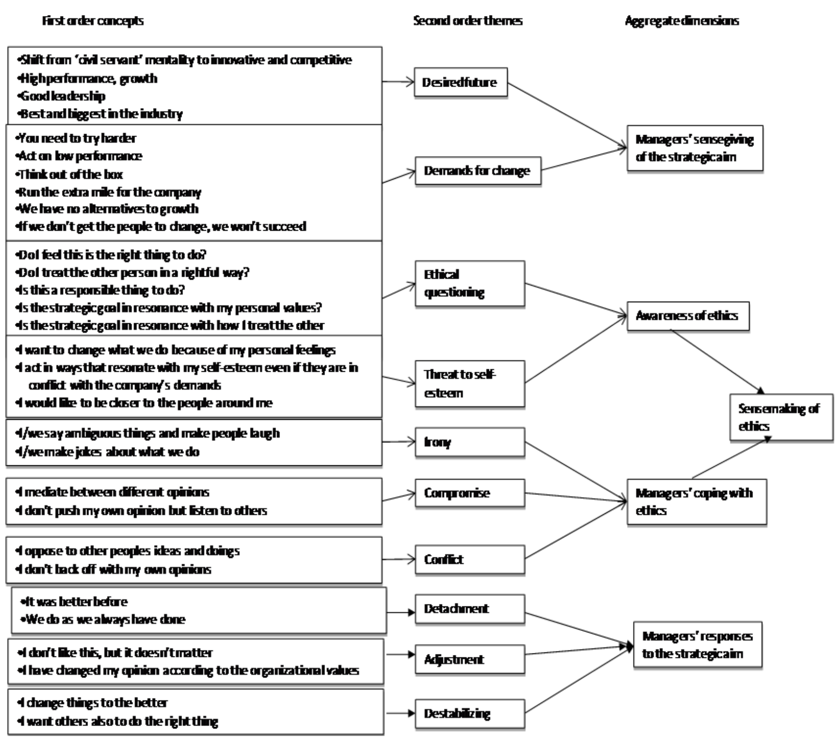
	Top management team	Extended management team	Business Unit 1	Business Unit 2	Business Unit 3
Observation	5 meetings, 31 hours	2 meetings, 4 hours	3 meetings 19 hours	4 meetings 23 hours	3 meetings 12 hours
Interviews	7 persons		3 persons	4 persons	5 persons

Analysis of issues. I first engaged in a descriptive account of the data: capturing first order concepts and the process that was unfolding and summarizing it with quotes. Next, I moved onto increasing levels of theoretical abstraction by comparing within and across the data for dominant instances of merges with existing theory. The content of the issues were primarily found in the data from observing the meetings, while the interview data provided additional insight into the sensemaking processes. Working from all this data, I used a constant comparison method, moving between the data and themes to build a grounded theory (Glaser and Strauss 1967).

Identification of issues. The original purpose of this research project as a whole was to develop broader theories of strategic change and organizational identity. However, in reading the data I observed that the identities were unfolding through interaction that revealed sympathy and solicitude and care for the other person. In my notes, I highlighted phrases and sentences that suggested sensemaking about the strategic aim in comparison with the ethical. I micro-coded the conversations and interviews by using the computer-based qualitative analysis program NVivo. I attached labels to the texts; a portion of text could be labeled with multiple codes. I identified initial concepts on the data and grouped them into categories. The first-order (Van Maanen, 1979) codes used language from informants or a descriptive phrase. When searching the data, I grouped like-coded data into themes. I used the software to categorize paragraphs of data on the basis of both of my a priori theoretical interests. I returned to the data to examine if there were any themes, and located ten emerging issues or second-order themes that are described in detail below.

One of the main goals in the company was to change the “engineer” and “civil servant” mentality into an entrepreneurial one. Individual initiative was brought up as a key issue, with the aim of trying to get people to “think out of the box” and to “run the extra mile for the company". In terms of these issues, I understood the change process to represent a strategic aim, emphasizing demands for change. Strategy strives to build a coherent and unified ethos in the organization. Otherness on the other hand furthers the practice of reciprocity and epitomizes moral exemplarity; it recognizes that other opinions are of value and interest and consecrates the equal nature of the other. Drawing on the theory, I was able to find themes that represented demands for the future and demands for change which were the sensegiving of the strategic aim. The ambiguities that led to sensemaking of the ethical in consideration of the strategic aim became apparent through ethical questioning and reported threats to self-esteem. These equivocalities found their relief in irony, compromise and conflict. The sensemaking eventually led to responses on the sensegiving - the strategic aim - in the form of detachment, adjustment and destabilization. To finish I gathered similar themes into overarching dimensions that made up the basis for the emergent framework. The final data structure is illustrated in Figure 2, which summarizes the second-order themes upon which I built the model on sensemaking.

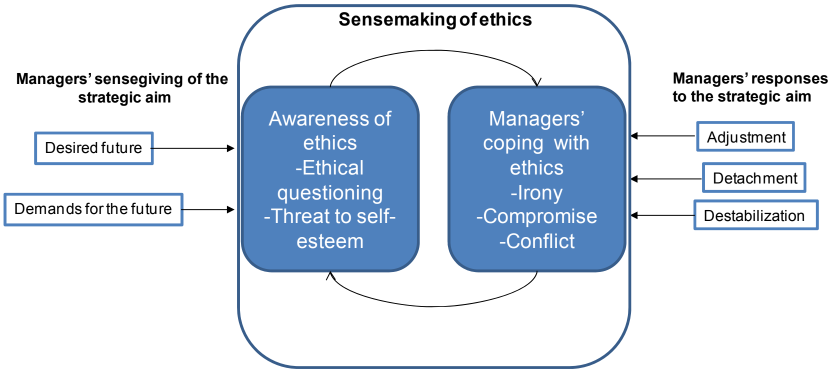
Figure 2 Data structure



Findings

As illustrated in Figure 4 below, there are three main dimensions to the model of sensemaking of ethics that emerged at ICE: (1) Managers' sensegiving of the strategic aim, (2) Sensemaking of ethics, and (3) Managers' responses to the strategic aim. The strategic aim of ICE was manifested in a desired future and demands for change. However, the strategic aim led to uncertainty that triggered sensemaking of the ethical task. The managers felt a threat to their self-esteem and started questioning the ethical. This sensemaking took its relief in irony, compromise and conflict, as the managers coped with the tension through these reactions. These tensions between the strategic aim and ethics led to responses to the strategic aim in the form of detachment, adjustment and destabilization. I gathered similar themes into overarching dimensions that make up the basis for the emergent framework. In this findings presentation, I have coordinated and integrated the findings narrative itself, Figure 2, showing the data structure, illustrative examples of the themes, and Figure 3 showing the model.

Figure 3 Ethical Sensemaking of Strategic Change



Discussion

My findings reveal how sensemaking of ethics in strategy work is prompted by a dynamic between sameness and otherness, in other words, between a desired future and ethical questioning. Not only did this sensemaking help managers in their individual ethical deliberation, but it also led to unintended outcomes in the strategy work. There will always be some aspects of work that require people to act in dissonance with their ethical beliefs and disrupt their sense of self. To respond to these conflicts, ongoing sensemaking is required in order to sustain self-esteem and a verifiable sense of one's identity as a moral being. Such sensemaking allows us see the evidence of our behavior and perhaps helps us become moral beings we can look back upon with a good sense of self-esteem. Normative approaches to business ethics have been important in understanding ethics as a way of making the organization's ethos more solid and more generous towards its stakeholders, both internal and external. Taking the subjective view of ethics into consideration will hopefully serve as encouragement for extending these endeavors.

I have made a case to show how organizational life contains an irreducibly ethical component. Through my analysis I was able to determine how managers engaged in sensemaking of ethics in order to live up to the demands of otherness. With this study I have extended the reach of business ethics literature, which has thus far tended to focus on normative ideals such as fairness (Kim and Mauborgne, 1991, 1998), shared value (Porter and Kramer, 2006), moral identity (Aquino and Reed, 2002) or moral decision making (Gunia et al 2012). My findings suggest that ethics is not something that can be held separate from the day-to-day, or even moment-to-moment activity. Ethics is not identical to normative governance principles or value statements; rather agents possess ethical subjectivity in how they define their ethical position in relation to their everyday practice (Bernauer and Mahon, 1994; Chan and Garrick, 2002; Kelemen and Peltonen, 2001). People at work constitute themselves as subjects in relation to ethics and the practices they adopt to maintain a sense of an ethical self. Individuals continuously see themselves as subjects in relation to their sense of responsibility for themselves and others, and their actions have an ethical nature. It challenges the privileged status of normative moral reasoning that ethical deliberation is only based on rational choices.

My model can also be seen as a contribution to the emerging literature on ethical sensemaking, pioneered in particular by Sonenshein (2007, 2009). This work has focused on the emergence of an ethical stance in strategic issue analysis (Ansoff, 1980). Research on sensemaking has shown that organizational reality is constituted through shared knowledge structures that guide interpretation of organizational events (e.g. Bartunek, 1984; Balogun and Johnson 2004). I have focused on the contradictions between strategic and ethical considerations. I have shed light on how the opposing pressures between strategic sameness and ethical otherness interact in managerial sensemaking. My model furthers understanding of managers as ethical and strategic agents, fully engaged with the contingencies and dynamics of the world. Instead of being an abstract cognitive exercise, ethics is about relationships and responsiveness. I have shown that by building their ethical subjectivity in strategy work, managers locate their otherness in the "plausible solution" between the strategic aim and the ethical otherness.

In conclusion

The preservation of sameness is the explicit basis for most strategy work and certainly necessary for companies and organizations to operate effectively. My aim has not been to discredit this underpinning of strategy, but to augment understanding of strategic change. Otherness – what the organization's members care about – is the basis for the caring for and nurturing that exists and draws the employees together (Maitlis and Lawrence, 2012). Individuals play many roles in the organization, but the company's strategy is a perpetually unfolding story that can be shaped through otherness (Barry and Elmes, 1997). The importance of the analysis and the model presented here is, therefore, the empirically induced concepts they offer to account for the managers' inherent need for otherness – or the ethical aim of life as it is lived in a strategic organization. They link the strategic aim and ethics through sensemaking, i.e. the activity that is triggered by the tension between the aims while acknowledging the unpredictable nature of strategy work. What is most important is not that this process exists, but how the strategic aim is altered in the process. Ethics is the individual's ongoing experience of making choices about his or her actions and the institutional context in which these actions are situated.

A single case setting, while it has allowed me to focus on the dynamics of ethical sensemaking within the context of a large MNC, raises an issue about the generalizability of our findings. My aim has been to build theory regarding a yet unknown phenomenon (Lee, Mitchell and Sablynski, 1999). My model should be examined in other contexts and industries in further research.

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THIRD AWARD

The influence of brand music on the determinants of brand-equity: an approach by music symbolism.

Alice Zoghaib
University Paris Dauphine

Abstract

Music has been increasingly used to represent brand concept and, to influence brand recognition and brand image (two brand-equity determinants). Few researches studied this phenomenon. To fill this gap, we introduce the concept of music symbolism, the source of brand associations produced by music according to the literature and expert interviews. Results of a sensory analysis on 172 music titles and of two experiments prove the existence of eight music symbolism forms and eight produced brand association themes. A moderate incongruity between music symbolism and prior brand associations leads to new brand meanings and to a maximized brand attitude.

Introduction

Traditionally applied for its positive impacts on attitudes towards the ad and the brand, music has been increasingly used to represent brand concept (significations desired by the managers, Park, Jaworski and MacInnis, 1986) and, to influence brand recognition and brand image. However, few researches focus on music as an antecedent of these two brand-equity determinants. Literature in music psychology shows that music symbolism is the source of music meaning (founder of modern musicology: Nattiez, 1975). Music symbolism is defined by musicologists as the meaningful combination of music parameters. It activates associations stored in individual's memory. The concept of music symbolism therefore seems central in a study about advertising music and music meaning. Systematically analyzed in musicology, music symbolism has almost never been studied in marketing. Scott (1990) emphasizes the need for researches on music meaning, especially with a holistic (taking all music parameters into account) and statistical approach. The purpose of this research is to measure the impact of music symbolism on affective as well as cognitive responses towards an advertised brand. To reach these objectives, we followed a holistic approach of music by introducing for the first time in marketing the concept of music symbolism and the method of music analysis enabling a statistical approach. Results and implications of a multidisciplinary literature (in musicology and marketing) and six studies (experts' interviews, three-step sensory analysis and two experiments) are discussed in the last part of this paper.

Literature

The literature in marketing traditionally focused on the affective impacts of music in advertising. The affective response to music influences affective responses to the ad and the brand (Affect Transfert Theory, MacKenzie, Lutz and Belch, 1986). The congruity between music and the advertised brand also influences affective responses (Lavack, Thakor and Bottausci, 2008). Recent researches showed that moderate congruity maximize the affective response (Meyers-Levy and Tybout, 1989). Some researchers also studied the impact of individual variables on affective response. Women are more sensitive to music than men (Kellaris and Altsech, 1992). Gender (Kellaris and Altsech, 1992) and age (Stipp, 1990; Donnat, 1998) moderate the impact of music on affective response for certain music types (e.g.: high-pitched, soft and old pop music for women, techno and pop rock music for the youth). A second body of research progressively took music's cognitive impact into account: music increases involvement and therefore fosters central information processing (MacInnis, Moorman and Jaworski, 1991) and memorization (Craik and Lockhart, 1972).

A more recent body of research shows that music can not only influence cognitive process but also produce actual meaning (Scott, 1990; Hung, 2001; Zhu and Meyers-Levy, 2005). Zhu and Meyers-Levy (2005) demonstrate that consumers infer two types of meaning from music, "embodied" or "referential". "Embodied" meaning is directly linked with music's intrinsic sound properties and produces perceptual (concrete) brand inferences: fast tempo is stimulating and therefore associated with an "excited, frivolous activity". "Referential" meaning is the fruit of cultural conventions linking a music schema with an external, conceptual signification (Francès, 1984; Meyer, 1994): slow tempo is culturally associated with calm and therefore with a "dependable, hassle-free service". This research is the first one introducing the concept of music meaning, linking a music parameter (tempo) with its brand-related signification for consumers. However, this research did not study all music parameters and music's complete range of signification. According to Francès (1984), reference author of experimental psychology of music, tempo structure is just a form of a certain type of music symbolism (descriptive) which conveys a specific embodied meaning type.

As a consequence of the marketing literature on advertising music, it appears that further research is needed on music as a « central » communication cue (Hargreaves and North, 1997). More specifically, according to Scott (1990), further research is needed on music meaning following a holistic approach. Music perception is not the sum of each features' perception. Many authors who studied advertising music also call for "a statistical analysis of symbolic or musical meanings" (Burke, 1973; Geertz, 1983; Scott, 1990). Therefore, it seems important to describe and measure music meaning through a holistic approach.

According to the literature in musicology, studying music requires to take all music parameters into account (holistic approach) as well as music symbolism and music responses (tripartite approach, Molino, 1975). Music symbolism is defined by musicologists as the meaningful combination of music parameters (Nattiez, 1975). Without symbolism, music would sound like noise. It is therefore the source of all music responses, emotional (pleasure, activation – state of stimulation, arousal), affective (liking, evaluations) and associative.

As far as affective responses are concerned, they are linked with music characteristics but also with extrinsic variables such as music congruity with the context of listening (Berlyne, 1991). A moderate level of music congruity leads to a maximized affective response. Concerning associative responses to music, they directly depend on music symbolism type. Each member of a music culture share an implicit music knowledge (such as tonal knowledge, McAdams and Bigand, 1994) acquired by acculturation (Teplov, 1947). According to recent studies in neurosciences of music, while listening to music, the individual stores each music sequence (five seconds in average, Clarke, 1987) in working memory. This piece of information is then compared with existing music schema (music symbolism) stored in long-term memory. These music schemas are themselves associated with significations in the long-term memory. Musicologists tried to categorize music symbolism forms and the associations they produce. They traditionally agree on two types of music symbolism (descriptive and expressive; table 1) and two types of produced meaning (respectively, embodied meaning linked with physical objects and referential meaning linked with affective judgments). A new category of music symbolism and produced meaning were introduced with the rise of music industry and pop music: the historico-cultural music symbolism type (table 1) produces associations with abstract concepts (linked with culture, personality, an era, etc.). Many researches showed that a more precise level of categorization can be defined (forms of music symbolism and themes of produced associations).

Table 1 – Music symbolism types (source: Francès, 1984), significations and examples

Descriptive music symbolism: - Musical characteristics: based on melodic movement (defined by the duration, pitch and intensity of notes as well as the variation of any of these characteristics). - Music significations: embodied meaning linked with physical objects (space occupied by an object, object's luminance and texture, object's movements). - Example from the world musical heritage: The bird, in Peter and the Wolf, Prokofiev; variations in the high-pitched melodic movement produce associations with something light, fluid, shiny, like a bird. - Example of global advertising: the Polar bears from Coca Cola, 2012; long high-pitched notes on a floating melodic movement produce associations with lightness and infinity.
Expressive music symbolism: - Musical characteristics: based on harmonic and timbral movement (defined by tonality, mode, timber, chords – triad of notes…). - Music significations: referential meaning linked with affective judgments (liking, feelings of happiness or sadness). - Example from the world musical heritage: Clair de Lune, Debussy; emotions are created by the predominant harmonic movement. There is almost no melody. - Example of global advertising: Dior Secret Garden (2012), music from Depeche Mode (Enjoy the silence); prevailing harmonic movement characterized by tonal instability (created by the closeness of chords in terms of pitch) producing strong emotions and a feeling of strangeness

Historico-cultural music symbolism:

- Musical characteristics: based on musical genre, rhythm, instrumentation
- Music significations: referential meaning linked with abstract objects and concepts (culture, personality, socio-cultural context)
- Example from the world musical heritage: Smells like teen spirit, Nirvana; heavy instrumentation and rhythm produce associations with the youth, freedom, non-conformism
- Example of global advertising: Motorola Defy (2012), music from Death From Above 1979 (Romantic Rights - Erol Alkan's Love From Below's re-edit); prevailing rhythmic and instrumental movement, characteristic of Rock music, producing associations with the youth, rebelliousness, independence

We can wonder whether music symbolism can influence brand associations and how. According to the Human Associative Memory theory (*HAM theory*, Anderson and Bower, 1973), memory consists in a network of information nodes (Collins and Quillian, 1969; Collins and Loftus, 1975; Raaijmakers and Shiffrin, 1981). The repeated co-occurrence of two information nodes strengthens the link between them. The repeated exposure to a brand paired with a piece of music (a prevailing method in advertising) could strengthen the link between the brand node, the music node and music significations linked with the music node. Consumers could therefore associate the brand with music significations.

A majority of brand associations' categorizations (Park, Jaworski and MacInnis, 1986; Keller, 1993) mention three signification types: functional (linked with physical characteristics), experiential (linked with affective judgments, feelings, experience felt as a consequence of product consumption or brand purchase) or symbolic dimensions (abstract concepts such as personality, values, culture, belonging or status associated with the brand). We can easily draw a parallel between these dimensions and the categorization of musically induced associations previously exposed (physical characteristics, affective judgments and abstract meaning linked with culture and personality). There is actually a theoretical correspondence between music symbolism types and produced brand association types, which we will try to confirm empirically. We will also try to describe a more detailed level of categorization.

Model and methodology

The results of this multidisciplinary literature review show that music symbolism influence affective as well as associative responses to an advertised brand. What is more, this review shows a theoretical correspondence between music symbolism (type and forms) and produced brand associations (types and themes). No research has been conducted on these correspondences.

Therefore, we completed this literature review by collecting experts' opinion on brand music in order to finalize the model of the research. Following the Delphi method, we interviewed three times 20 experts from communication agencies or sound design agencies (creation and selection of music for media advertising or stores). At the beginning of the two last interview cycles, we showed the synthetic table of all interviewees' answers and asked them to confirm or change their positions. This method aims at observing convergence or divergence between experts. Interviews helped us understand the significant contribution of brand music to brand-equity. Experts all resort to music symbolism but use it to represent different meanings. Indeed, the semiotic square, defined after the content analysis, reveals four symbolizing approaches. Some agencies emphasize the necessity of symbolizing only brand related meaning: either a part of the brand concept only (metonymic approach) or the global concept (metaphoric approach). Other agencies (global communication agencies mainly) prefer to symbolize significations that are not related to the brand: either an incongruous meaning (ironic approach; TBWA) or an exaggerated meaning (hyperbolic approach; BETC).

As a consequence of the literature review completed by experts' interviews, we adapted MacKenzie, Lutz and Belch's model of advertising persuasion (1986) by introducing the concept of music symbolism (independent variable) and perceived music congruity (intermediate variable) along with the other persuasion variables (affective and cognitive responses to the ad and to the brand, purchase intentions). We followed a connectionist approach of brand knowledge by introducing the variable of brand associations. We also introduced individual variables as moderators (age, gender, level of music expertise, level of education). In all studies, we controlled the familiarity with occidental music.

In order to measure the persuasive impacts of music symbolism, we first conducted a three-step sensory analysis including 1) a music analysis and a categorization of 172 advertising music pieces completed by 5 musicologists, a pre-test (10 people were exposed to 40 music pieces) and a test (34 people were exposed to 10 music pieces) on consumers' perception. We analyzed the validity of the categorization in the light of Berelson's criteria. We measured the significance of the link between music symbolism and brand associations thanks to Fisher's exact test. We measured the strength of the link thanks to contingency and Cramer's V tests. We then conducted a correspondence analysis in order to visualize correspondences.

Then, we conducted two experiments investigating the impacts of music symbolism on two different well balanced samples (respectively 206 and 134 people) formed by snowball effect. For each experiment, we successfully conducted preliminary tests required for the analyses of variance (simple and multiple) and structural equations. The first experiment measures the direct effects of all music symbolism forms found in the sensory analysis in a situation of brand information lack (no prior brand associations). The second experiment studies the influence of three levels of congruity between music symbolism types (3 types manipulated) and the prior brand association type. Individuals are first exposed to a scenario describing a prior brand association theme (light, aerial brand associations). Then, they listened to a radio spot including one of three music symbolism forms (High-pitched, Low-pitched and Positive forms, respectively congruent, incongruent and moderately congruent). All manipulation checks were satisfying (prior and posterior brand association themes, perceived music congruity, neutrality of the radio spot message and of the fictive brand's name). We conducted analyses of variance in order to measure the direct impacts of music symbolism. We used structural equations in order to measure the influence of perceived music congruity on the rest of the model. In order to verify mediations, we used Sobel tests. Fit indices of the measurement model are satisfying (RMSEA = 0,064; normed x^2 closed to 0; GFI, NFI, NNFI and CFI superior to 0,9).

Results

The results of the sensory analysis suggest that advertising music and its produced brand associations can be classified into eight categories (table 2).

Table 2 – Classification of music symbolism and produced brand associations

Music symbolism		Brand associations	
Type	**Form**	**Type**	**Theme**
Descriptive	"High-pitched": high-pitched melodic movement	Functional	"Light": light, aerial
	"Low-pitched": low-pitched melodic movement		"Strong": strong, heavy
Expressive	"Positive": positive tonal movement, soft timber	Experiential	"Happy" : happy, joyful

Type	Form	Type	Theme
	"Negative": negative tonal movement, rough timber		"Moving" : moving, sad
Historico-cultural	"Pop Rock" : Pop, Pop Rock, Rock, punk and derived musical genres	Symbolic	"Young" : young, independence
	"Techno" : musical genres derived from Techno		"Modern" : modern, futuristic
	"Old pop": popular music before the eighties		"Retro" : old-fashioned, kitsch
	"Traditional music ": Folk, Blues, Jazz, Classic and derived musical genres		"Traditional" : traditional, classic

The two levels of categorization obtained comply with Berelson's criteria (1952): categories are homogeneous (music and semantic proximity within categories), exhaustive (all music pieces were categorized), exclusive (each music piece is only in one category), objective (the analyses of the five musicologists are convergent) and pertinent (the obtained categories comply with the objectives of the sensory analysis, which are to categorize music symbolism and its associations).

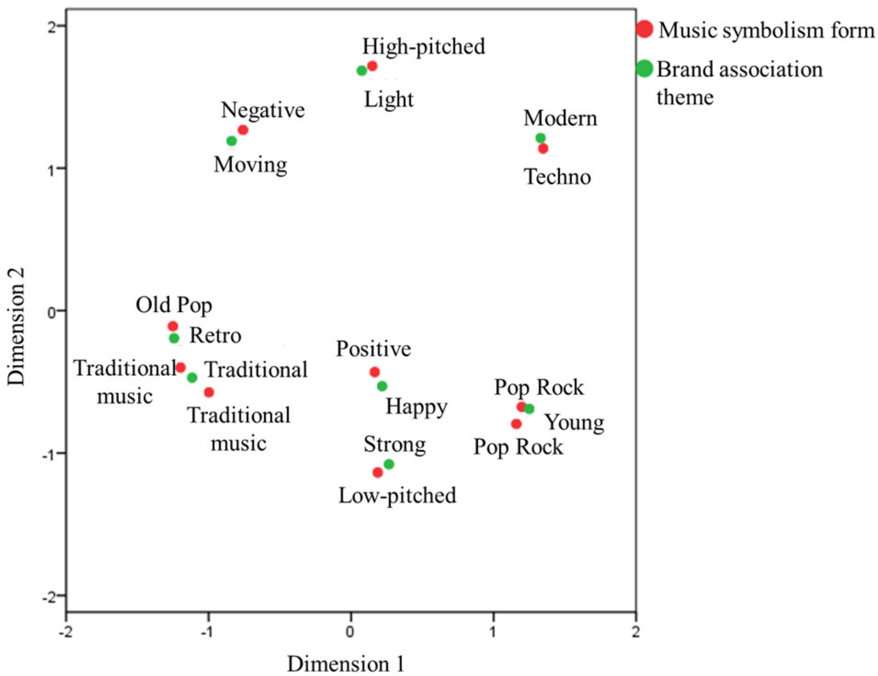
The table of contingency (table 3) shows three types of convergence: between individuals (high percentage of individuals choosing the same theme; e.g.: 82% of interviewees associate the High-pitched form with a Light brand), between experts and non-experts (the consensual theme is always the one experts anticipated), between music pieces within the same music symbolism form (music pieces number 9 and 10 are both Traditional and associated with a Traditional brand by respectively 79% and 88% of the interviewees).

Table 3 – Contingency table of music symbolism forms and brand association themes in the framework of the perceptual analysis test

Music symbolism form		Brand association theme															
		Light		Strong		Happy		Moving		Young		Modern		Retro		Tradi-tional	
		N	*%*	*n*	*%*	*N*	*%*	*N*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*N*	*%*
1	**High-pitched**	28	**82**	1	3	0	0	2	6	0	0	3	9	0	0	0	0
2	**Low-pitched**	0	0	30	**88**	0	0	0	0	1	3	0	0	0	0	3	9
3	**Positive**	2	6	0	0	29	**85**	0	0	1	3	0	0	2	6	0	0
4	**Negative**	6	18	0	0	0	0	25	**74**	0	0	0	0	0	0	3	9
5	**Pop Rock**	0	0	3	9	2	6	0	0	27	**79**	2	6	0	0	0	0
6	**Pop Rock (2)**	0	0	3	9	3	9	0	0	28	**82**	0	0	0	0	0	0
7	**Techno**	2	6	0	0	0	0	0	0	4	12	28	**82**	0	0	0	0
8	**Old pop**	0	0	0	0	1	3	3	9	0	0	0	0	28	**82**	2	6
9	**Traditional music**	0	0	0	0	0	0	2	6	0	0	0	0	2	6	30	**88**
10	**Traditional music (2)**	0	0	3	9	2	6	0	0	0	0	0	0	2	6	27	**79**

The graphic projection of Chi-square distances (figure 1) shows a strong correspondence between music symbolism form and brand association themes (proximity of circles from different colors).

Figure 1 – Graphic projection of the correspondence analysis between music symbolism form and brand association themes in the framework of the perceptual analysis test



All hypotheses of experiment 1 are confirmed. The results of the first experiment show that, whatever the level of music expertise and of education, people associate the advertised brand with the same meaning depending on the music symbolism form ($p < .01$). For each music symbolism form, individuals associate the brand more intensely with the anticipated theme: High-pitched form produces a significantly stronger Light theme ($p < .01$, mean=6,38 on a 7 points scale), Low-pitched form produces a stronger Strong theme ($p < .01$, mean=5,79), Positive form produces a stronger Happy theme ($p < .01$, mean= 5,93), Negative form produces a stronger Moving theme ($p < .01$, mean= 6,61), Pop Rock form produces a stronger Young theme ($p < .01$, mean=6,21), Techno form produces a stronger Modern theme ($p < .01$, mean=6,16), Old Pop form produces a stronger Retro theme ($p < .01$, mean=6,66), Traditional music form produces a stronger Traditional theme ($p < .01$, mean=6,81).

Music symbolism has a direct impact on affective response to music ($p < .01$). Gender also has a direct effect on affective response to music ($p < .01$), which confirms Kellaris and Altsech's research (1992). The link between music and affective response to music is moderated by gender and age for certain music symbolism forms. Women are more sensitive to High-pitched ($p < .01$; mean=5,09 for women versus 4,57 for men), Positive ($p < .01$; mean=5,61 for women versus 5,00 for men) and Old Pop forms ($p < .01$; mean=5,14 for women versus 4,56 for men). The younger segment of the sample is more sensitive to the Techno form ($p < .01$; mean= 3,67 for people bellow 25 years old versus 2,90 for people older than 45 years old).

In the second experiment, we hypothesized a direct impact of music symbolism on brand association strength as well as a partial mediation of perceived music congruity within this link. We also hypothesized a nonlinear affective impact of perceived music congruity. The other hypotheses are related with persuasion hierarchical effects (direct and positive influence of brand associations on brand attitude, direct and positive influence of brand attitude on purchase intentions, etc.). All hypotheses of experiment 2 are confirmed but one, on persuasion hierarchical effects, which is partially accepted: the strength of one brand association theme has not a significant positive impact on brand attitude. This theme is produced by the moderately congruent music, which explains less striking results as the two other conditions.

The results of the second experiment show that, for an already established brand, music symbolism has a direct impact on brand associations. Despite the prior brand associations, people associate the brand with the meaning symbolized by music, just as in a situation of brand information lack. When exposed to a brand described as light and aerial, individuals associate the brand more intensely with a Strong theme in presence of Low-pitched music symbolism form ($p < .01$; mean=6,16), with a Happy theme in presence of Positive music symbolism form ($p < .01$; mean=5,84), with a Light theme in presence of Low-pitched music symbolism form ($p < .01$; mean=6,39). These results confirm the hypothesis of a direct effect of music symbolism form on the strength of brand association themes ($p < .01$). We also observe an indirect effect of music symbolism via the perceived music congruity. Music symbolism form influences perceived music congruity ($p < .01$) which in turns influences the strength of brand association themes ($t=14,214$ for the impact on the Light theme; $t=-10,64$ for the impact on the Strong theme). Perceived music congruity plays a partial mediating role in the link between music symbolism and brand associations.

Finally, the perceived music congruity has a nonlinear (logarithmic) impact on affective responses ($p < .01$, $t = 3,377$, adjusted $R^2 = 0,071$: neperian logarithmic impact on affective response to music; $p < .01$, $t = 3,377$, adjusted $R^2 = 0,071$: neperian logarithmic impact on brand attitude). These results confirm the research of Meyers-Levy and Tybout (1989), emphasizing the nonlinear affective impact of congruity in advertising.

Discussion

A holistic and tripartite approach of music seems unavoidable in order to study the persuasive power of music. Music symbolism and music congruity with prior brand associations influence affective and associative responses to the brand. In particular, music symbolism form determines the theme of brand associations produced by music. Individual variables also have a strong impact on responses to music. Women's affective response to music symbolism is systematically stronger than men. Gender and age moderate the affective impact of music for certain music symbolism forms. The levels of music expertise and of education have no impact on affective or associative responses, confirming the literature in sociology and musicology.

This research contributes to music persuasion studies from a conceptual point of view by introducing musicological concepts into the field of marketing and suggesting a study approach (holistic and tripartite). Studying music without a music theory background or studying only one (or two) isolated music parameter actually leads to misinterpretations. For example, a minor mode doesn't always produce associations with sadness. The music « Woman » from Urban Species used in a TV advertising campaign from Yves Rocher (cosmetics for women) is in minor mode. The results of the sensory analysis show that it associated with a peaceful and happy brand. The feeling of sadness is not induced by music's mode but by a prevailing harmonic movement including a certain degree of tonal instability. In the same manner, slow tempo can be associated with energy and fast tempo with calm: when the tempo of a music piece is slow (fast), a succession of brief notes (long notes linked together - "legato") can convey meanings of strength and energy (of calm). To summarize, it is not relevant from a musicological point of view to study mode, or tempo, or any other music parameter separately despite the important number of studies that followed this analytic approach (Stout and Leckenby, 1988; Kellaris and Kent, 1992; Wansink, 1992).

Secondly, the present research conceptually contributes to marketing researches on music by introducing the concept of music symbolism. This concept along with the connectionist approach of music perception explains the cognitive influence of music on brand memorization and brand image.

Thirdly, this research suggests a categorization of music and its induced brand associations. All music types and all brand associations produced by music were defined and measured. The symbolic correspondences found in this research help researchers explain, describe and anticipate the type and strength of musically induced brand associations. This categorization fills the gap in marketing research on music influence identified by Scott (1990): a statistical approach of music meaning based on music theory, underlining what musical characteristics are the most significant.

The experts' interviews also provide specific conceptual contributions. They emphasized the contribution of brand signs to brand equity. They also underlined four communication approaches. This study confirms existing semiotic analyses on communication approaches and provides more details on the different symbolic processes (metonymic, metaphoric, ironic and hyperbolic).

This research also contributes to marketing research on music influence from a methodological point of view. This research suggests several methods inspired from musicology. We verified the validity of a dual association task in order to elicit associations produced by music. It combines a free and a prompted association task thanks to a list of words. We also described the process of music analysis. Finally, we described the process of content analysis and categorization applied to musically induced associations.

Finally, this research has several managerial implications. We show that musically induced brand associations can be categorized and anticipated, therefore helping managers 1) select advertising music, 2) modify existing music stimuli in order to better fit brand concept or to change brand image, and finally 3) monitor the impact of advertising music. This research actually led to the creation of a research institute on sound impact (Sound Value) as well as a selection and a monitoring tool for brand managers. More specifically, brand managers should choose a congruent form of music symbolism in order to strengthen brand image. In order to modify brand image, they should resort to a moderately congruent music symbolism form. It produces a different but compatible theme of associations and maximizes brand attitude.

In order to isolate the influence of music symbolism on brand associations, certain conceptual and methodological choices were made that may limit the validity of this research. Measuring brand recognition would contribute to research on brand equity and help managers use music as a leverage to foster brand equity. Other individual variables such as the optimal stimulation level should be taken into account in order to explain the impact of music on affective responses.

Finally, other stimuli such as TV advertising could be used in an experiment in order to improve the external validity of the research. Studying real brands could also improve external validity as well as provide interesting examples for managers.

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Exploring the organizational impact of the NHS quality and outcomes framework (QOF) in GP practices

Mohammad Alyahya
University of York

Abstract

The NHS Quality and Outcomes Framework (QOF) is a Payment for Performance (P4P) scheme that was launched in the UK on 1 April 2004.This study aims to explore the change process from the perspective of organisational memory (OM).

Four large GP practices in the north of England were involved in the study. Data was collected through semi-structured interviews. In total, interviews included thirty nine informants.

The findings evidence that OM and competence contributed to how GP practices developed their strategies contextually in responding to QOF. The most significant contribution is how OM and competence could be used to comprehend the phenomenon of change in health care settings.

Keywords: QOF, Pay for Performance, Organisational Memory, Competence(s), Organisational Change, Organisational Strategy.

Introduction

Since its introduction in 2004, QOF has represented a significant proportion of public expenditure, costing the UK economy approximately £1 billion per annum (Campbell, McDonald and Lester, 2008). GPs can increase their income by up to 25% per annum, depending on their performance as measured against 134 predefined quality indicators under four domains: i) clinical care, ii) organisational, iii) patient experience, and iv) additional services (Roland, 2004; NHS_The_Information_Centre, 2006).

Previous research shows that shown QOF has encouraged GP practices to make adjustments to their systems representing organisational changes (e.g. Checkland & Harrison, 2010; Huby et al., 2008; McDonald, Checkland, Harrison, & Coleman, 2009). Yet, whether the practices' engagement in such decisions fitted their organisational strategy and structure is still unknown. Huby et al. (2008) found that large-scale GP practices ran the practice as a business, so that their adaptation to QOF reflected the practices' strategic decisions. The authors discovered facts that were rather different from the story respondents shared. Similarly, Checkland and Harrison (2010) also emphasise that people in GP practices tried to convey the message that QOF had brought little or no change to their activities, as they already had such activities prior to QOF. Both studies raise questions as to why there is a discrepancy between the stories of practice staff and reality, and whether organisation staff contributes to shaping an understanding of change processes in their organisation. These studies also point out for the need to engage in an in-depth understanding of such changes through exploring the views of organisational members.

Members of an organisation are considered to be one of the main knowledge repositories in the organisation and hence contribute to building Organisational Memory (OM) (Abel, 2008; King, 2009; Walsh & Ungson, 1991). OM is an organisation's stored knowledge which can be used to explain and justify the processes and results of organisational change (i.e. Adler, Goldoftas, & Levine, 1999; Tsai, Lin, & Chen, 2010). It is a generic concept which refers to managing knowledge, information and intangible assets as a key organisational competence, which leads to organisational success (Stein & Zwass, 1995; Wijnhoven, 1999).

In healthcare setting, only a very limited number of studies explore the relationship between OM and QOF as a trigger of organisational change, despite that GP practices were reported to experience various changes in their strategy, structure, IT systems and other organisational processes (Checkland, 2007; Checkland & Harrison, 2010; Checkland, McDonald, & Harrison, 2007). On that basis, this study intends to contribute to the knowledge by investigate how OM shapes changes in how organisation develop their strategic direction.

1. Review of previous studies

In order to ensure that all important evidence was not left out, this study reviewed the evidence systematically as its first gateway to the area. From initial screening of 698 articles, there were 16 previous reviews and 115 empirical articles, focusing on primary care, were included in this review of evidence. Amongst those 115 studies, twenty three studies discussed about the impact of P4P on organisational change and how OM influenced the performance of such changes.

P4P schemes can be considered as a 'mechanism for change' (Huby et al., 2008). This means that they act as a trigger for practice organisations to engage in the change process. In reality, P4P has led to changes in both hard systems, such as physical and infrastructure changes, and soft systems, including behavioural and structural changes (e.g. Checkland et al., 2007; Edwards & Neal, 2008; Grant et al., 2009; McDonald & Roland, 2009). Behavioural and structural changes were shown through organisation's decision to enlarge their capacity by establishing new clinics, which required additional healthcare and IT professionals. Some notable findings also include changes in professional roles and relationships such as increasing GP specialisation and expanded roles of nurses (Checkland et al., 2007; Grant et al., 2009).

It is found that some practices made adjustments or changes to their systems which represented a deeper level of organisational change (Bokhour et al., 2006; Checkland & Harrison, 2010; Damberg, Raube, & Teleki, 2009; Sutton, Ikenwilo, & Skatun, 2007). Various studies showed how practices embedded change initiatives by developing physician level incentives to strengthen shared learning, or in the case of large and modern practices, conducted financial investment to make them more business-like (i.e. Bokhour et al., 2006; Checkland & Harrison, 2010). Bokhour et al. (2006) suggest that financial incentives can be used as a catalyst for change and especially for system level change. Specifically, the involvement of various organisational members can be seen as evidence of a genuine engagement process, in a way that involves different professions in self-surveillance (McDonald, Harrison, & Checkland, 2008). This means that practices undergo changes and adjust themselves at different levels by setting up changes in organisational elements.

While there was no specific discussion on OM, it is clear that the use of data templates in the information system created the physical repositories of knowledge. With the implementation of P4P schemes, such as QOF, practices were required to comply with data templates (i.e. Beaulieu & Horrigan, 2005; McDonald & Roland, 2009). Along with the function to capture and store patient information in the system, these information repositories serve as a bank of information on a patient's condition, as well as the treatments provided from them. Thus, practices were able to extract information much more easily than they had done when using a paper-based system. Data templates also improved organisation's knowledge capacity as it helped organisational members obtain and share knowledge (Checkland et al., 2007; Menachemi, Struchen-Shellhorn, Brooks, & Simpson, 2009). Yet, extensive use of data templates may limit and undermine the role of healthcare professionals in getting more information about a patient's health (Checkland et al., 2007).

Regarding organisational change, this review was able to identify several points. Firstly, acting as a stimulus for change, QOF has been able to push the practices to expand and improve their service delivery. Secondly, practices became more aware of various factors that could potentially contribute to their performance level. These factors could be either their internal capacity (i.e. practice size) or external factors such as demographic characteristics of patient population. Thirdly, to achieve QOF targets, practices managed changes in their system, including recruiting more staff, delegation of routine clinical work from doctors to nurses and also from nurses to healthcare assistants, as well as more engagement in skill training. Fourth, despite the evidence of change was detected, the narrative of having ‘no change’ was also observed. Healthcare professionals believed strongly that the implementation of QOF had not led to actual differences in working practices. Instead, they believed that they were already involved in such activities prior to QOF. This was the focal point for addressing the ‘sense-making’ view in the practices and showing how people perceive changes based on their memory.

2. Organisation memory and strategy

This research attempts to find out how the changes in direction has been influenced by organisational within the context of QOF. GP practices have been working under QOF since 2004. There are long-standing practices, which have been in the industry for many decades whilst others are newly established. Over time, practices might develop their capabilities and thus, improve the way they responded to QOF. Practices with a long working history might have been able to respond better to QOF when it was first introduced.

Substantial drivers for change can include perceived performance gaps, identity gaps, adapting to changes in the external environment, such as government policies and advancement of technology (Hurst & Zimmerman, 1994, p. 349; Shortell, Morrison, & Robbins, 1985, p. 226). Moreover, the process of internal and external environmental scanning contributes to the construction of OM (Wijnhoven, 1999). Change itself may involve a process of re-creation and re-orientation of strategy that reflects substantial adjustments in strategic direction (Nadler & Tushman, 1989). In this sense, it is also essential to understand that each organisation possesses a paradigm that is built through their collective past experiences and represented through their beliefs and assumptions. This paradigm serves as a framework of reference and affects their ways of understanding and determining strategic direction. It is only by external stimuli that an organisation able to trigger such process as a learned response, which implies that within the same environment different organisations might respond differently to the external stimuli (Johnson, 1987; Johnson, 1992).

The notion of time is important in understanding organisational strategy, as it deals with how, and to what extent, the present strategy corresponds to an organisation’s preceding strategies and whether it will prevail for future strategies (Shortell, Morrison and Robbins, 1985; Pettigrew, 2002). This has dual implications. Firstly, there is no shortcut to achieving organisational objectives. The time lag between the implementation or process stage and the expected outcome demands that organisations think proactively about what they are going to achieve. Secondly, strategy often follows pathways and is influenced by previous experiences. Organisations often take into account stories about success and failure when they develop new directions.

Despite the importance of strategy setting, there is little empirical research on the relationship between OM and strategy, especially in healthcare. This also applies to the context of QOF. Research indicates that GP practices make adjustments or change their systems, but it is less clear how QOF affects the strategies of practices. On this ground, this study assumes that the more GP practices are aware of previous failures and successes and the more they integrated knowledge into their OM, the more able they are to develop an organisational strategy in response to QOF. A proposition is then developed on this ground.

'The more GP practices are aware of previous failures and successes and the more they integrated knowledge into their organisational memory, the more able they are to develop an organisational strategy in response to QOF.'

It is expected that findings of this study will show practices to have employed their OM to recall their strength and weaknesses through experiences or narratives. Organisations recall their knowledge of what has happened and use their OM to learn about their strengths or competences, as well as their weaknesses to guide their decisions.

3. Research method

This study expects to gain in-depth perspectives on the social reality. This is informed by both ontological and epistemological positions in a way that 'discursive constructions of the social or the self' are important in fulfilling research objectives (Mason, 2002). Ontologically, this research believes that people's memory is constructed from their knowledge and experiences, and memory may construct social reality which could be different to what is available in the literature. Epistemologically implies a need to engage in ways that allow a more critical approach to managing and interpreting information collected through qualitative interviews

This research study is based on an in-depth qualitative case study approach in four GP settings in the north of England. The four practices were selected based on the criteria of being large-size organisations and having consistently high QOF score. While consistently high QOF score reflects good-performance organisations; large-size practice may reflect better technical facilities and well-structured and organised practices (Wensing, Van den Hombergh, Van Doremalen, Grol, & Szecsenyi, 2009).

The Information Centre categorisation of practices has defined a large size practice as a practice that serves more than 8,000 people (The_NHS_Information_Centre, 2007). Prior to data collection, this study obtained Ethics and Research Governance Approval from the NHS ethics committee, NHS R&D department, and also from the University of York Ethics Committee. No conflict of interests was reported.

This research utilised triangulation data, which is argued to help researchers in dealing with issues of trustworthiness, completeness of data and bias for subjectivity (Gillham, 2000). Semi-structured interviews with thirty nine informants, including partner GPs, salaried GPs, practice managers, nurses, healthcare assistants and administration staff were conducted. By involving various professionals, richer information was expected as people are a rich source of data as they are 'repositories of knowledge, evidence, and experience' (Mason, 2002), a reflection of research focusing on OM

The initial thematic guideline for interview was pilot-tested on two key individuals responsible for QOF and their suggestions were used to revise and finalise the guideline. Due to its iterative process, researcher was able to construct questions alongside the interview processes. For each theme in the guideline, interviewees were asked to compare between pre and post QOF.

Interviews were taped with each participant's consent. They were then transcribed, read and re-read by the researcher. These processes helped constructed the major themes of the analysis.

4. Findings and analysis

4.1. General Description of the Practices

Four practices participated in the study. While they were all categorized as large practices, three of them were located in urban context and only Practice D that was located in a semi-rural area. Both Practice A, B, and D have long history of being a primary healthcare organisations for more than 60 years. Practice C, located in a historic spa town, was actually a merge of two establish practices. Practice D was the only one located in a small town with no other practices within its 3 miles radius.

Although the interviews involved participants from different professions, due to their involvement in strategy development, it was only partners and practice managers who were able to explain the practice strategy in detail. Financial investment in the practices, especially for partners, required them to engage intensively in such a process.

4.2. QOF and Changes in Strategic Directions

For the four practices, all were agreed that the process of defining strategic direction was not easy. Practices were bound by Government's rules and regulations.

> *We don't have a strategic plan, I don't think for the next 5 or 10 years, because there is a lot of uncertainty at the moment, in terms of the income that we get from the government, but each year, we review our strategy a bit. (PA.D4).*

On the question of how QOF influences practices in their strategy development, one of the partners from Practice A asserted that it pushed them to think more about survivability than before. Changes in QOF measurements made practices think harder about how to improve their performance, as it would considerably affect their financial situation.

In developing their strategic decisions, the practices went through several assessments including an evaluation of their points of strength and weakness and also opportunities and challenges they might encounter in the environment. These represent how organisations managed changes and ensured that they adapted to the dynamics of change in their both internal and external environment, to ensure their survivability. The practices took into account their previous achievements and even failures.

> *There were times when we knew about what our strengths, what our weaknesses, how come we best use these strengths for the practice then, and those sort of things, you know, what people want to do in the practice (PA. D2).*

Practices also proactively explored possible ways of meeting patients' demands through engaging in scanning the external environmental, which is beneficial in shaping their paths of competence and justifying the services provided for patients. Practice B, for example, did not provide services related to drug rehabilitation as there was no need for particular service in their population.

> *I don't know anything within QOF that we wouldn't offer, that we don't offer. And other general, enhanced services particularly we offer nearly all enhanced services apart from drug rehabilitation, because we don't have, we're not a practice that has a high drug problem, inner cities probably would have, but we don't, we're quite a middle class sort of practice really, to the patients that we feed (PB.A1).*

In addition to internal resources and external environment, judicious consideration of the possibility of achieving a target was also critical. Hence, practices drew on their intellectual judgment to learn from previous experiences and assess the feasibility of alternative decisions, to ensure that the benefit outweighed the costs of choosing such a decision.

> *And it's a times to fight between whether we try to achieve it or not. But our range is always trying to reach the maximum point if we can, although we do look at it and say "look, that's totally unachievable, we're not even gonna try. Let's channel our energy to some of the parts, like ethnicity for example, we struggle to get that question answered correctly, or struggle to get it answered all the time, and so we've decided that's not worth so much, let's not even bother, lets lose that point, and let's go for something that's more worthwhile to the patients, you know, in a medical way (PA.A1).*

As to their responds to QOF, three main changes were stated to take place in the practices.

1. **Shifting to Chronic Disease Care**. The study found that QOF has influence how practices established their strategic vision. Most respondents agreed that after QOF, their strategic priorities became more oriented toward establishment of chronic disease clinics. These arrangements led to a more structured chronic disease management, which could not have been possible without QOF. Although priority was given to particular chronic disease areas, physicians maintained that they did not neglect other diseases.

> *I think the first thing that we did was set up more focused chronic disease clinics to run alongside with the QOF. Before, the patients would just come to certain things and medication review and see the GPs. Whereas we set up clinics which the practice run because you're picking up more, identifying more chronic disease is actually increasing in numbers as well (PD.D1).*

2. **Shifting to Business Oriented Organisation**. For the practices, the decision to shift direction toward chronic disease, as required by QOF was inevitable, as it correlated significantly with financial issues. The QOF contribution to the practice income reached between 20% and 30% of their total income. This, in turn, represents how QOF enforced practices to be more money-driven and business orientated than before.

> *I suppose we always think of one or two others that have always been a bit more business-orientated than us and I think there's been a danger in the past of saying, 'oh we're not business-orientated' we're patient-orientated, but you've got to be both these days (PC.D6).*

It is perceived that QOF procedures focused more on targets or data fulfilment than on the state of patients' health. While it was widely known that such a shift was necessary for their existence, it caused frustration for health care professionals, as they were concerned about undermining the practice's priorities towards its patients.

3. **QOF and Proactive Health Care System**. As chronic disease patients became the focal point, all practices set up recall/appointment systems to ensure that those patients got their health checked regularly.

> *It is clearly got more preventive, proactive. So, I am no longer dealing with just illness, but I am also dealing with chronic disease a lot more, as we all are. So, I guess it is probably a bit, if I am really honest, I think I am probably a bit better [...] at being proactive with people (PA. D4).*

Instead of waiting for patients to come to the practices when they were ill, this recall system invited them at regular intervals. In a case when patients failed to attend the appointments, they were considered as exception cases. In this sense, QOF had caused practices to be proactive rather than passively waiting for patients to come in when they had health problems.

5. Discussion

Previous section shows how QOF affected how practices planned their strategic directions. Shifts towards a proactive health care system, as well as more emphasis on chronic diseases, were the most quoted changes in organisational strategies. To some extent, organisational strategy was seen as a reaction to a financial scheme that practices needed to comply with, as it had a significant impact on a practice's income. It was intriguing to explore how practices engaged in strategic processes.

While practices had strategic plans, they were not convinced of the necessity of such strategies as practices' directions were shaped by government regulations. It is important that practices did what the government required them to do. In other words, this implies strong control of the government over the management of the practices. This reflects that practices' decision to engage in QOF involved the political process in strategic decision making (Wilson, 1992). Practices took the decision on that basis to ensure sustainability of income, which was crucial for staffing and running day-to-day activities. Accordingly, the practices adapted their strategies to external triggers from the environment (Mintzberg, 1978; Shortell & Kaluzny, 2006; Shortell et al., 1985).

While practices were bound to follow government schemes, such as QOF, to sustain their income; the findings show that the way they engaged in the implementation processes depended on their own decisions. Although there were similar patterns on how the four practices developed their strategic responses, such as assigning clinical leads, establishing chronic disease clinics, recruiting more staff and delegation of work. These support previous studies exploring how practices respond to QOF (i.e. Checkland, 2004; Griffiths, Murrells, Maben, Jones, & Ashworth, 2010; Roland, Campbell, Bailey, Whalley, & Sibbald, 2006). However, how those strategic changes were conducted depended on a practice's strengths and weaknesses, hence, their competences. It shows that practices elaborated on their assessments of what they were good at and also what they were weak at, reflecting on both their successes and failures. This process was considered important to ensure the feasibility of implementing alternative strategies with the practice's resource constraints. At the same time, this contributed to their memory capacity, as practices learnt through their previous experiences or activities (Aguilar, 1967; Wijnhoven, 1999).

The findings also show how partners learnt from their experiences of failure or success in managing their practices organisations. Related to funding, over time, all practices learnt that it became more difficult to gain funding through various medical contracts. The Government kept changing QOF indicators and allocation of points. Despite that such changes were argued to be necessary to reflect an improvement in quality; for the practices, they were perceived as a hindrance to attaining maximum points. This potentially de-motivated practices. Practices expected that there would be potentially limited financial resources from the Government in the future. Thus, they learnt to go beyond their traditional therapeutic roles and explore other financial opportunities. In turn, the intention to sustain a practice's income flow urged the partnership to think and build strategies which aided the practices to accommodate changes and deal with them appropriately.

The way practices adapted to changes and adjusted their strategies aligns with the idea of contextualism in implementing change, which means that 'implementation is a function of antecedent factors and processes' (Wilson, 1992). The practices were different in their approach to implementing change, considering their histories or experiences. The findings also correspond closely with those of Huby et al. (2008), who reported that each GP practice had its own story of change, which reflected its different style and ethos.

6. Conclusion and contribution to knowledge

Based on the analysis, it can be said that the findings support the proposition that *the more GP practices are aware of previous failures and successes and the more they integrated knowledge into their organisational memory, the more able they are to develop an organisational strategy in response to QOF*. This includes all preceding factors and processes taking place in an organisation, which also implies that each organisation may work differently due to having their own experiences and characteristics.

This study itself contributes to the body of knowledge by exploring the role of OM as a core competence in exploring changes in strategic direction. In general, there are three folds of contributions.

First. While the findings of this study strengthen previous research, they also offer a more comprehensive view of the realm of memory and change in the same context. The extension of the OM literature, including the use of routines and its contribution to the development of competence, brought significant implications to enriching theoretical perspectives in understanding change, especially in terms of changes in strategic direction in the context of the highly regulated healthcare sector.

Second. Although external stimuli are necessary for triggering organisations in defining their strategic direction based on organisational past and managerial experience, this study provides empirical evidence that this is not always the case. Such stimuli are not always the trigger for change. An internal, self-reflexive learning process can also shape an organisational direction. Organisations learn from their collective memory and are involved in utilizing their organisational memory to enhance their competence to develop their strategy with less stress.

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The Pricing Behavior of Depository Receipts: Evidence from Emerging Markets

Aliaa I. Bassiouny
ESADE Business School

Abstract

This thesis examines in depth the pricing behavior of depository receipts from emerging markets which were largely overlooked despite their dominating role in the foreign cross-listing arena. The thesis shows the following. First, the law of one price is violated due to large trading barriers present in those markets. Second, a large number of profitable intraday arbitrage opportunities are present and are utilized. Finally, the local and foreign market both play a role in the intraday pricing of cross-listed securities but the location of price discovery is found to depend on liquidity, trading volume and the legal environment.

1. Introduction and Motivation

Stock exchanges in the past three decades have witnessed a 'foreign cross-listing' phenomenon, whereby the stocks of firms not only trade on their local exchanges but also on other foreign international exchanges. This internationalization of trading has attracted extensive attention from academia to understand the dynamics of multi-market trading (Karolyi, 1998; 2006) as more companies opt for foreign cross-listing for its financial, operational and governance benefits (King and Segal, 2008) and more international investors trade these stocks for the promising portfolio diversification rewards (Domowitz et al, 2001).

Depository Receipts(DRs) are considered the most common method for foreign cross-listing. They trade on foreign stock exchange as claims against the underlying stocks of the company on the local stock exchange. The DRs are issued by a trust bank that holds those underlying stocks on behalf of investors. While DRs are usually denominated in US dollars (USD), their underlying stocks trade in the currency of the local market. DRs that are listed on US exchanges are referred to as American DRs (ADRs) while DRs listed on international exchanges outside the US are usually referred to as Global DRs (GDRs).

Except for their location of trade and currency denomination, the DR and its underlying stock have similar claims against the company's cash flows and are also fully convertible to one another; an important feature referred to as *fungibility*. These characteristics make the DR and the underlying stock to be essentially identical securities and we expect them to be priced with the same fundamentals.

Academic researchers in asset pricing and multi-market microstructure have increasingly become interested in examining the pricing behavior of DRs relative to their underlying stock. They use the results of such analyses as an indicator of whether foreign cross-listing promotes stock market integration, by enhancing cross-market linkages, versus an argument of greater fragmentation, due to the competition between stock exchanges over share of trading in cross-listed securities.

Understanding the role of DRs in stock market integration is important as they are increasingly dominating the world of foreign listing. By the first half of 2011, over 3400 companies from 80 different countries were foreign listed on major international stock markets as DRs, with New York and London attracting the largest number of DR listing. More than 80.5 billion DRs were trading on international exchanges during that period with a value of $1.91 trillion (BNYM, 2011). DRs from emerging markets make up over 70% of listed DRs trading on international exchanges, yet research on them tends to be limited to periods of financial and economic crises. In this thesis, we focus on the pricing behavior of DRs from emerging markets.

Our lack of knowledge about how prices of DRs from emerging markets relate to their underlying stock is hampered by two main factors: first, the lack of quality data on the underlying stocks trading in emerging stock markets required for such analysis (Karolyi, 2006) and second, the trading barriers that exist in those markets and which are hypothesized to distort the theoretical pricing relationship between the DR and its underlying stock.

The purpose of this thesis is to further our understanding of the pricing behavior of DRs and their underlying stocks using Egyptian and Argentinean DRs from emerging markets in presence of large trading barriers and making use of a proprietary high frequency intraday dataset. The first analysis of this thesis examines the fundamental economic relationship that ties both securities: the law of one price (LOOP). Since both securities have identical claims on the cash flows of the same asset, the LOOP should ensure that they are identically priced in the long run.

Yet, since each security trades on a different market, differential market co-movements, investor sentiment and noise trading can cause prices to diverge in the short term. This can create arbitrage opportunities for active arbitrageurs who can intervene to make risk free profits. Our second empirical methodology focuses on identifying whether arbitrage opportunities exist between emerging market DRs and their underlying stock, especially in presence of large trading barriers that was so far hypothesized to hamper such activity. The analysis uses a unique high frequency intraday dataset to identify whether arbitrage opportunities exist and to establish whether arbitrage trades play a role in restoring price parity.

We establish the important role of arbitrageurs in restoring prices to their fundamental values and in keeping prices from drifting away from a common efficient implicit price. This allows us to examine the last empirical question of this thesis, which is whether the local or foreign market plays a more dominant role in the pricing of emerging market DR. This question focuses on the price discovery process of DRs and their underlying stocks which is a key function of stock exchanges. Figure 1 provides an overview of the empirical framework of this thesis.

2. The Pricing Behavior of Depository Receipts

This dissertation consists of three empirical examinations on the pricing behavior of DRs from emerging markets using Egyptian and Argentinean DRs as our sample. Firstly, it examines the basic fundamental relationship governing the pricing of emerging market DRs and their underlying stock: that of the LOOP. Secondly, we carry out a static analysis of the pricing behavior through an intraday arbitrage analysis which examines whether arbitrage opportunities exist between the cross-listed securities during overlapping trading hours and the role of arbitrage trades in restoring price parity. Thirdly, we conduct a more dynamic analysis that measures the role of the local versus foreign market in the price discovery process of the cross-listed securities.

This section gives a brief summary of each type of analysis and the main results of this dissertation.

2.1. The Law of One Price

The first empirical methodology tests whether the LOOP holds between the DR and the underlying stock. Economic theory stipulates that identical goods should trade at identical prices and this approach conducts a long term test of price parity to confirm stock market integration and efficiency.

While a popular empirical methodology that dominated early studies on the pricing behavior of DRs, the analysis is confined by several limitations. First, testing the law of one price involves a direct comparison between the price of the DR and the underlying stock. Early studies, relying on comparing daily closing prices, confuse price parity with lack of arbitrage opportunities in the DR market. Their analysis suffers from non-contemporaneousness due to the trading hour differences between markets and thus do not give a real indication of whether arbitrage opportunities exist or not. Second, a rejection of price parity between the DR and its underlying stock does not necessarily mean that both securities are not priced by similar factors. Since various market microstructure differences and trading barriers might exist between the foreign and local market, those price differences might reflect such barriers rather than a lack of price efficiency.

We conduct an empirical analysis on whether the LOOP holds between Egyptian cross-listed securities using daily closing prices and relying on the common methodology in the literature. Since Egyptian stocks are cross-listed on the London Stock Exchange, this is the first test of the LOOP on companies cross-listed on exchanges outside of the US. Other characteristics of the Egyptian sample that make such analysis useful, are the different trading week in Egypt and London as well as assessing the abolishment of a fixed exchange rate regime on the pricing of DRs relative to their underlying stock.

The results of our empirical analysis reveals large deviations from price parity between Egyptian DRs and their underlying stock. This result, while indicating lack of full integration between stock markets trading the same assets, cannot be interpreted as a situation of market inefficiency. The large trading barriers and microstructure characteristics present in the local Egyptian market can cause market segmentation between the local and foreign market which prevents full convergence in prices. Moreover, in order to conclude with certainty whether those large price deviations are indeed arbitrage opportunities, we need to delve deeper into the process of arbitrage, which is only captured using intraday high frequency data (Suarez, 2005; Gagnon and Karolyi, 20101).

2.2. Arbitrage Operations

The second approach directly tests whether arbitrage opportunities exist between a DR and its underlying stock. This methodology stems from the argument that price parity should be ensured by active arbitrageurs in the market who act on any mispricing. When arbitrageurs find that prices between the DR and the underlying stock diverge, they will intervene by buying the underpriced security, selling the overpriced one and using the fungibility between both securities to close their positions, making risk free profits in the process.

The arbitrage operation involved in DRs is a very unique situation in equity markets since it is instantaneous similar to the foreign exchange market. Unlike dual listed stocks, mutual funds and exchange traded funds, any deviation between the DR and its underlying stock does not require risky convergence trading whereby arbitrageurs have to wait for prices to close.

Defining a price deviation between the DR and its underlying stock as an arbitrage opportunity requires two conditions. First, that both the foreign and local market are open at the same time so that arbitrageurs can instantly profit from any deviation in prices. Second, due to trading costs, not all price deviations between the DR and the underlying stock are worth arbitraging, creating a no-arbitrage band inside which DR prices deviate from their underlying stock without being profitable arbitrage opportunities.

These conditions entail that studies trying to identify whether arbitrage opportunities exist, have to rely on intraday data that capture the hours during which the DR and its underlying stock are trading at the same time. They should also account for all arbitrage trading costs involved in order to properly identify arbitrage opportunities. Both conditions make studies in this area so far very scarce.

In fully informationally efficient markets, the mere threat of an arbitrage opportunity should keep the prices of DRs and their underlying stock at par. This theoretical proposition is compromised by the 'word out there' in financial markets that arbitrage opportunities between DRs and their underlying stock are frequent and that arbitrageurs make 'good money'. So far, empirical studies that can validate this notion are lacking.

The second methodology we employ in this thesis for examining pricing behavior of DRs studies whether arbitrage opportunities exist between DRs and their underlying stocks and analyzes the role of arbitrage trades in the price convergence process. The empirical analysis was facilitated by the use of a high frequency dataset that consists of approximately two years of intraday transaction data for two emerging markets with trading barriers: Egypt and Argentina. The unique features of our markets and the characteristics of the dataset required several modifications from the traditional methodology involved in studying the pricing behavior of DRs relative to their underlying stock.

We find that not only do arbitrage opportunities exist between our sample of emerging market DRs and their underlying stock, but that arbitrage trades played an important role in restoring prices to equilibrium (defined as a band of price deviations inside which arbitrage is not profitable) . We extract real arbitrage trades form our intraday transaction data which reveals that arbitrageurs are active and profit considerably from large mispricing between the DR and its underlying stock.

While the benefits of the arbitrage analysis in understanding the relationship between prices of the DR and its underlying stock is that it does not suffer from any joint hypothesis problems of relying on certain pricing models, its limitation is that it is a static form of analysis that doesn't capture the evolution of prices. A price discovery model that can capture where the price is determined, locally or internationally, provides some useful insights on the role of the foreign market in pricing DRs.

2.3. Price Discovery

The final analysis in this thesis involves examining price discover to establish whether the foreign or local market plays the more dominant role in the pricing of DRs and to analyze the factors that affect the location of price discovery. When securities trade in different stock markets, the question of where the price is determined amongst the competing trading venues provides an important analysis on the extent to which information that arises in the new overseas market contributes to price discovery.

The role of the foreign market in the pricing of the local stock can provide us with insights on how information flows travel and the role DRs play in enhancing stock market linkages. Our analysis of how the international market contributes to price discovery process of cross-listed stocks has been facilitated by the multi-market price discovery models of Gonzalo and Granger (GG) (1995) and Hasbrouck (1995) which have initially been empirically applied in studies on the role of regional exchanges in pricing of US equities and then adopted by the multi-market literature to measure the contribution of the foreign stock exchange in the price discovery of cross-listed stock.

However, the main obstacle to the application of such models is that they can only be properly operationalized with high frequency data. This makes our understanding of price discovery in a multi-market setting mostly guided by a number of fragmented studies across different settings, time frames and methodologies. While most studies so far have found that the local market continues to dominate the price determination process, with the foreign market acting as a satellite to the local one, the result depends on the share of trading that migrates to the international market.

Our objective is to measure the contribution of the local versus foreign stock exchange in price discovery of Egyptian and Argentinean cross-listed stocks using the high frequency intraday dataset we employ in this thesis. Such an analysis is motivated by the lack of price discovery studies on emerging market DRs that are foreign listed on international exchanges.

Our methodology employs the Component Share methodology of Gonzalo and Granger that relies on estimating a vector error correction model between the DR and underlying stock price while accounting for exchange rate movements. For robustness we also use the Hasbrouck Information Share measure as well as endogenize the effect of the exchange rate. Before using the price discovery models, we first establish that for all of our sample the DR and its underlying stock are co-integrated and thus they are linked by long term international arbitrage linkages, a result which we verified by our arbitrage analysis.

Our results indicate that whereas the local market for Egyptian securities is the dominant market for price discovery, the price for Argentinean securities is determined in both the local and US stock markets, to the extent that for some stocks the local market acts as a pure satellite to the international exchange. We believe this evidence to be the first of its kind in DRs and corroborates Eun and Sabherwal's (2003) results on dual-listed Canadian stocks.

We try to explain the results of the price discovery analysis and find that liquidity, volume of trade, and market capitalization are all significant variables that explain the location of price discovery. An additional factor that we believe is relevant in explaining the location of price discovery is the change in the legal environment of stock markets, a factor which has not been addressed before in the literature on the location of price discovery of DRs. We use a unique event in the Egyptian stock market, which closed for over 2 months amid the events of the 25th of January 2012 uprising, to measure the effect of such closure on price discovery of Egyptian cross-listed stocks. The results of the analysis further reveal the importance of the change in the legal environment on shifting the location of price discovery.

3. Contribution to Scientific Knowledge

The work that made up the core of this thesis has contributed to the literature as follows. Chapter 4 of the thesis has been published in Middle Eastern Finance and Economics Issue # 17 2012 under "The Law of One Price in Global Depository Receipts: Empirical Evidence from Egyptian GDRs". Chapter 5 is forthcoming in Journal of International Financial Markets, Institutions and Money (ELSEVIER) Issue 23 February 2013 under paper entitled "The Proof is in the Pudding: Arbitrage is Possible in Limited Markets: Intraday Evidence from the Depository Receipts of Emerging Markets". Chapter 6 is forthcoming in Investment Analysts Journal May 2013 and is entitled "An Investigation of Intraday Price Discovery in Cross-Listed Emerging Market Equities". Finally, Chapter 7 is under review in Emerging Market Finance and Trade and is titled "The effect of political uprisings on the location of price discovery: Evidence from Egyptian cross-listed equities".

THE PRICING BEHAVIOR OF DEPOSITORY RECEIPTS		
THE LAW OF ONE PRICE EMPIRICAL METHODOLOGY (A) *Objective* Testing whether the Law of One Price holds between a DR and its underlying stock *Data* Can be operationalized with daily or intraday data. *Test* $H_0 \dashrightarrow P_t^{DR} = P_t^{S^*}$	ARBITRAGE EMPIRICAL METHODOLOGY (B) *Objective* Testing whether arbitrage opportunities exist between a DR and its underlying stock *Data* Intraday data is required to capture arbitrage in the frequency it occurs *Test* Identify arbitrage opportunities in the data as those instances in which price deviation exceeds cost of arbtirage $\left\|P_t^{DR} - P_t^{S^*}\right\| > k$	PRICE DISCOVERY EMPIRICAL METHODOLOGY (C) *Objective* To measure whether the local or the foreign market contribute more to the price discovery process *Data* Intraday data is required to operationalize price discovery models *Test* **Vector Error Correction Model using:** Gonzalo and Granger (1995) Component Share Hasbourck (1995) Information Share

Figure 3-1 The Pricing Behavior of DRs: Comparing Methodologies

Contribution to Scientific Knowledge

The Pricing Behavior of Depository Receipts Evidence from Emerging Markets	A. Law of One Price	The Law of One Price in Global Depository Receipts: Empirical Evidence from Egyptian Equties	*Published* Middle Eastern Finance and Economics Presented in IX Foro Finanzas Presented in Imperial College Faculty Seminar ESADE Knowledge Working Paper Series 223	Issue 17, 2012 November 2009 December 2009 March 2012
	B. Arbitrage Operations	The Proof is in the Pudding: Arbitrage is possible in limited markets	*Forthcoming,* Journal of International Financial Markets, Institutions and Money Presented in Global Finance Conference Cape Town Presented in Provost Lecture Series: American University in Cairo Presented in Faculty Seminar Series: American University in Cairo ESADE Knowledge Working Paper Series N 222	Issue 23, Feb 2013 November 2010 May 2011 November 2011 March 2012
	C. Price Discovery	An Investigation of Intraday Price Discovery in Cross-Listed Emerging Market Equities	*Forthcoming* Investment Analysts Journal ESADE Knowledge Working Paper series N 221	February 2012 March 2012
		Revolutionary Effects on the Intraday Price Discovery of Cross-Listed Egyptian Equities	*Under Review* Emerging Markets Finance and Trade	January 2013

Figure 3-2 Contribution to Scientific Knowledge

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Scaling in social entrepreneurship: Partnerships, knowledge transfer, and businsess models

Imran Chowdhury
ESSEC Business School

Abstract

The purpose of this dissertation is to deepen the study of social entrepreneurship by examining how social entrepreneurs use partnerships and organize themselves to transfer knowledge. Using a mixed-methods approach, I illuminate the innovation transfer process as it relates to social entrepreneurs. My objective is twofold. First, I utilize the literature on institutions to explain how organizational processes impacted by multiple logics unfold. Second, I identify several crucial factors influencing how social enterprises organize themselves, and in doing so highlight the value-creation focus of certain firms that emerge and operate where situations of simultaneous market and government failure exist.

Introduction

Innovation transfer lies at the heart of business strategy and entrepreneurship. As markets have increasingly globalized in past decades, innovation transfer to partners has emerged as a relatively low-cost and effective way for firms to increase their reach (Gulati, 1998; Ahuja, Polidoro, and Mitchell, 2009). For many organizations the high cost of expanding operations internationally, coupled with the desire for access to technologies and business models which are capable of reaching multiple geographies and markets, leaves innovation transfer as the only viable option for increasing their impact beyond local boundaries. Scholars have followed this trend with great interest, and a proliferation of studies in this area attests to co-evolution of practitioner and researcher concerns (Faulkner and de Rond, 2000).

Researchers have examined innovation transfer from multiple perspectives, but the focus of many studies in this tradition has tended towards two extremes: an under-socialized perspective and an over-socialized one, using Granovetter's (1985) terminology. On the one hand, scholars working in the tradition business strategy and economics have focused on the efficiency motivations of partners in a transfer relationship. As noted by Ansari, Fiss, and Zajac (2010), who term them "rational accounts" of innovation adoption, these motivations are rooted in traditional economic theory and focus on the presumed economic benefits which result from the adoption of a practice following transfer. In this, they highlight the connection between the cost effectiveness or efficacy of an innovation and the likelihood of it being utilized by the recipient firm or business unit (Rogers, 1995). In these models, selection pressures may work to eliminate those organizations which fail to adopt an efficient practice and the most efficient innovations may be adopted by rational managers, resulting in increased performance for their firms and the spread of the innovation to non-adopters that wish to gain the same performance impact (Rao, Greve & Davis, 2001). On the other hand, scholars working in the sociological tradition of organizational theory have tended to look at the environment in which an organization is embedded – including social, cultural, political, and economic concerns – and the extent to which this environment influences the actions of organizations beyond questions of efficiency and calculation. For instance, institutional perspectives stress the role of local cultural factors and institutions in shaping the nature and direction of innovation transfer, especially through macro-level studies (e.g., Westney, 1987; Djelic, 1998; Hwang and Powell, 2009) as well as scattered micro-level case studies of the innovation transfer process (e.g., Boxenbaum and Battilana, 2005).

This study attempts to chart a middle course by examining the innovation transfer process between social entrepreneurs. Building on the innovation transfer strategy literature, which seeks to develop a broad view of the various strategies used by firms to transfer innovations effectively, I study the innovation transfer process in a social entrepreneurship context, where there is an explicitly greater balance between efficiency goals and broader, social goals (Pache and Santos, 2010). By doing this I highlight the value-creation focus of certain firms that emerge and operate where situations of simultaneous market and government failure exist. While transfers of innovations have the potential to add value to all firms, differences in organizational objectives and identities may lead to transfer processes which look quite different as we move from traditional commercial entrepreneurship to social entrepreneurship.

The context of social entrepreneurship is highly relevant for business scholars, and social entrepreneurship is a growing field (Mair and Marti, 2006). Social entrepreneurship involves "entrepreneurial activity with an embedded social purpose" (Austin, Stevenson, and Wei-Skillern, 2006), and is often characterized by the allocation of resources (financial, human, political) to neglected social problems (Mair and Marti, 2006; Santos, 2009). Social entrepreneurs are the source of numerous innovations in both the developed and developing world, from the provision of low-cost preventive cataract surgeries to the distribution of low-cost loans to poor women to the revitalization of neglected urban and rural school systems (Bornstein, 2004; Elkington and Hartigan, 2008; Phills, Deiglmeier, and Miller, 2008). While social entrepreneurs differ from more traditional entrepreneurs on a number of dimensions, they can be most particularly with respect to their motivation to engage in business activity. For social entrepreneurs, the primary focus is on creating value for the community at large. While tradition entrepreneurs are also interested in creating value to a certain extent, their primary motivation is to capture value for a firm managers and shareholders in the form of economic profits (Santos, 2009).

Because social entrepreneurs are often more interested in sharing their innovation to maximize impact rather than "owning" it to maximize profits, the knowledge transfer process may be qualitatively different from what is observed in transfers between purely for-profit enterprises. For instance, a profit-motivated transfer attempt implicitly represents a speculative judgment about what it is profitable to replicate: it is important to replicate features which add value commensurate to their costs, value which can then be appropriated for the firm's stakeholders (Winter and Szulanski, 2001; Bloom and Chatterji, 2009). Social entrepreneurs also seek to add value, but do so with the primary intent to deliver solutions which address neglected positive externalities rather than to capture that value for themselves: social entrepreneurs work to ensure that the value they create spills over to the whole of society rather than a small part. Thus, profit may be a concern, but only to the extent that it helps to sustain their solutions (Santos, 2009).

While recent research in social entrepreneurship has focused on the need to scale social impact by expanding the growing the operations of successful social entrepreneurs (Bloom and Chatterji, 2009), the process of transferring innovations as a strategy for scaling social impact is poorly understood. Further, research on innovation transfer has neglected this issue almost entirely as it has largely not considered how entrepreneurs whose main mission is creating value, as opposed to capturing value, engage in the innovation transfer process. *The purpose of this study is to explore how social entrepreneurs manage the innovation transfer process and organize themselves to scale the impact of their innovations*. Thus, the issue is not limited to the mechanics and outcomes of transfer, as in previous studies. Rather, the questions I ask will delve deeply into how the motivations of social entrepreneurs, which are taken to be different from those of more traditional entrepreneurs, influence how the innovation transfer process plays out. I initially address this issue by re-examining the objectives, context, and scope of innovation transfer when the organizations involved are social entrepreneurs. I also examine the role of organizational identity (Albert and Whetten, 1985) in these processes.

In my empirical work, I broaden the focus of inquiry to address some more general questions. For instance, business scholars have also not adequately addressed the question of innovation transfer from the perspective of a firm engaged in the process of transferring an innovation. In other, words, how does the source firm develop a transfer strategy with respect to its successful innovations? With the exception of some limited work (e.g., Williams, 2007), researchers have yet to examine the interaction effect of a replication-focused or adaptation-focused transfer strategy with contextual and organizational factors to determine how source enterprises in a dyadic knowledge-transfer relationship most effectively accomplish their goals. That is, are entrepreneurs able to most effectively transfer their knowledge by always sticking to one strategy as opposed to the other? What contextual factors most influence the choice of strategy used? Does this choice change over time (e.g., do source enterprises use a strategy which incorporates replication and adaptation?)? If so: why? Importantly, how do multiple institutional logics impact the process of transferring innovations between social enterprises? Finally, how do social enterprises organize themselves to maximize their impact and to scale their innovations?

Utilizing a mixed-method, multiple-case approach, I study these questions by through a detailed study of social enterprises engaged in the innovation transfer process in six different emerging economies on two continents (Brazil, Bangladesh, India, Pakistan, Paraguay and Sri Lanka). Most studies of innovation transfer have focused on Western country contexts (e.g., Djelic, 1998; Katila and Ahuja, 2002), or countries that, if not Western, are nevertheless similarly well-developed industrially (e.g., Japan – Westney, 1987). Emerging economy contexts, where industrial institutions are far less advanced, have not been for the most part examined. Studies which have included emerging economies tend to focus on the transfer of western technologies and organizing patterns to developing countries, and how these technologies interact with these contexts (e.g., Rottenburg, 1996). Further, to date, very limited work as looked at the transfer of technologies from one emerging economy context to another, or, indeed, at transfers of technologies within emerging economies. My study addresses these gaps in the literature as well.

Methods

I now outline a research study to explore the transfer of innovations between social entrepreneurs as a way to increase social impact, building on the theoretical work described earlier in this proposal. The study involves inductive case studies of social enterprises involved in the process of transferring innovations to partners which are also social enterprises. This multiple-case design is a well-developed methodology used in the organizational research to expand existing theory. Multiple cases permit a replication logic in which cases are treated as independent experiments, each serving to confirm or disconfirm inferences drawn from the others (Eisenhardt, 1989; Yin, 2009). As befits the exploratory nature of the primary research question in this study, no testable hypotheses were formed prior to data collection (Glaser and Strauss, 1967; Suddaby, 2006). Rather, the goal of the study to use the data collected to develop specific theoretical constructs and related propositions which advance current organizational theory in novel directions (Eisenhardt, 1989; Eisenhardt, 1991; Siggelkow, 2007). This methodology is particularly suited to the study of social entrepreneurship, which, while context and story "rich," suffers from a paucity of theoretical development (Dees et al., 2004; Austin et al., 2006).

Data

To understand how social entrepreneurs manage the innovation transfer process, I studied a cohort of source-target pairs engaged in the process of transferring innovations. The study is part of a broader effort at to examine the transfer process called the Social Innovation Transfer Project. Where possible, examined this process longitudinally, that is, from start to finish. All of these pairs are composed of social entrepreneurs at both the source and target site. The project involved real-time tracking of these transfer projects over a period of up to 48 months. At the beginning of the study I sought to follow eight source-target pairs, with each source organization associated with two target organizations. Due to logistical and timing reasons, I ended up doing an in-depth study of four source-target pairs. However, by the end of the project I was able to do interviews with social entrepreneurs at six source organizations, and ten target organizations.

I conducted site visits to each of the four primary source and target locations, though for practical concerns (e.g., safety, cost limitations, etc.), "virtual site visits" by means of telephone conversations were conducted with manager may be conducted at two sites. Additional data were be collected subsequent to the field visits through telephone interviews and email exchanges. This timing of this data collection (approximately 6-18 months following initial visit) was sufficiently distant to allow longitudinal patterns to emerge, but at the same time recent enough to allow accurate and detailed data collection for the purposes of this study (Eisenhardt, 1991; Santos and Eisenhardt, 2009).

Specifically, my sample consisted of four organizational pairs, as mentioned above, including one source (transferring the innovation) organization and one target (receiving the innovation) organization in each pair. These organizations were drawn from a sample of sixteen finalist organization pairs from the proposal submission process to a well-known European Foundation. Pairs of organizations submitted proposals jointly in the hopes of receiving funding for innovation transfer between a source and target organization pair. Five winners were selected from the sixteen finalists, though I had access to the full proposals of all sixteen finalists (including the winners), and to the full list of applicants and letters of interest for the competition. This gave me a broad sample and allowed me examine whether there were significant differences between finalists and non-finalists, as well as winners and non-winners from the sixteen finalist source-target pairs.

To complete research case studies for each of the four in-depth transfer processes, I relied on multiple data sources, including: field observations; interviews; organizational records; emails; meeting notes; annual reports; project reports and updates; briefs and monographs; books written on or about the social entrepreneurs being studied; consulting evaluations; and survey data. Table 1 provides a comprehensive list of the data sources used in developing this study.

TABLE 1

CASE STUDY DATA COLLECTION SOURCES

Interviews	Archival Sources	Observation	Preliminary Survey
On-site at project locations where possible	Annual reports	Participation in meetings and direct observation at both source and target organizations	Data on innovations developed by source social entrepreneurs
At least senior managers at each organization, source and target	Reports to foundations and other stakeholders	Visits to project sites, at both source and target social entrepreneurs	Information on past, ongoing, and future innovation transfer attempts
Multiple levels - managerial and organizational - within the organization as well as stakeholders (e.g., beneficiaries)	Internal memos	Direct observation at points of interaction between beneficiaries and operational staff	Data on geographic scope of innovation transfer attempts
Process descriptions + structured questions during Pilot Study	Email exchanges	Public presentations	
Process descriptions during Phase III of Data Collection	Official correspondence	Other interactions between social entrepreneur staff and local population, government officials, donors, and other stakeholders	
	Draft documents		
	Websites		
	Consulting evaluations		
	Books		

Data Collection and Analysis: Four Stages

I now outline below the four stages of data collection that constituted this project. The first two stages were a preliminary survey and an exploratory case study, were completed by February 2009. Data from these two stages was used to develop the remainder of the study, which concluded in June 2012. Table 2 describes these stages in detail.

Table 2
Data Collection Timeline

Stage	Name	Time Period	Description
1	Preliminary Survey and Site Selection	July-August 2008	Short survey was sent out to the 16 finalist organizational pairs; 15 completed the survey. Data from surveys used to construct a list of the most promising organizations for follow-up.
2	Pilot Study	January-February 2009	The initial case study was conducted on-site at the source and target organizations of Pair 1, both located in India, to gain insight into the social innovation transfer process. This pilot study allowed the “field-testing” of a data gathering tool which was refined for use subsequent data-gathering.
3	Field Visits and Interviews	February-July 2010	In February, March and July 2010 I visited source and target social enterprises in Pair 2, Pair 3, and Pair 4 in Bangladesh, India, Paraguay, and Sri Lanka.
4	Follow-up and Data Analysis	July 2008-June 2012	Following and concurrent to field data collection I gathered updates on the progress of the knowledge transfer processes via email exchanges and telephone calls. I also had access to the periodic updates sent by each pair of organizations to the funding agency, up to and including the final reports (submitted in the summer of 2010) Final phone calls with both source and target organizations were conducted through June 2012.

Stage One: Preliminary Survey

In July and August 2008, a short survey was sent out to the 16 finalist source social entrepreneurs for the competition, including the five winners. The purpose of the survey was to gather information on the innovations developed by these organizations, and to gain a greater understanding of past, present, and future attempts to transfer these innovations. Of the sixteen organizations contacted, fourteen completed the survey. Data gathered from these surveys was used to construct a list of the most promising organizations for follow-up subsequent stages of the study.

Stage Two: Exploratory Study

In early 2009 (January – February), an exploratory case study was conducted on-site at two organizations – one source organization, one target organization – in India to gain preliminary insights into the process through which social entrepreneurs transfer their innovations to partners as a means to increase social impact. Utilizing an in-depth, semi-ethnographic field method, I spent approximately two weeks at the source entrepreneur site, and one week at the target organization, conducting interviews with staff members at all levels and going on numerous field visits to observe projects associated with the innovation. In addition to interviews gained access to archival materials at the organization's offices which offered information distinct from what is available in publicly-available materials such as web sites, annual reports, and funding proposals. Finally, by a large amount of time at the source entrepreneur's headquarters I was able to gain some understanding of the organization's culture and approach to innovation transfer at level of operations staff and mid-level managers responsible for project implementation.

A research case based on data gathered during the visit was written to highlight the key findings and directions for inquiry in subsequent phases of the research. The exploratory study also allowed the "field-testing" of a data gathering tool which will be refined for use in the primary data-gathering phase of the research. Further details regarding the study's design, findings, and key insights are provided in the next section of this proposal. The study interview guide is attached as Appendix B.

Stage Three: Site Visits

During the third phase of the project I conducted site visits to the organizational pairs ultimately selected for further study. I utilized an in-depth, semi-ethnographic field method in which the researcher spends approximately one week (or more) at the organization, conducting interviews with staff members at all levels and competing field visits to project sites as necessary and feasible. In addition to interviews gained access to archival materials which at the organization's offices, and to gain some understanding of the organization's culture and approach to innovation transfer distinct from what is written in publicly-available materials such as web sites, annual reports, funding proposals, etc. These site visits were completed during the period running from January 2010 through July 2010, and constituted the bulk of data collection for the project. Specifically, in February, March, and April of 2010 I visited both source social entrepreneurs and target organizations on the Indian subcontinent, namely, in Bangladesh, India, and Sri Lanka. I completed field visits to Paraguay and Brazil in July 2010. A list of the principal organizations in this study is included in Table 3 (please note that the full dissertation sample was broader than this, but this shortened list is presented due to the summary nature of this document).

TABLE 3
Characteristics of the Social Enterprises in this Study

	Pair 1		Pair 2		Pair 3		Pair 4	
Organization	Gram Vikas	CRHP	Aravind	Fundación Visión	TARA	Sewa Lanka	Waste Concern	Saiban
Source / Target	Source	Target	Source	Target	Source	Target	Source	Target
Domain	Public Health	Public Health	Public Health	Public Health	Sustainable Rural Development	Sustainable Rural Development	Sustainable Urban Development	Sustainable Urban Development
Country	India	India	India	Paraguay	India	Sri Lanka	Bangladesh	Pakistan
Founding Year	1979	1970	1976	1992	1984	1993	1996	1991
Number of Employees	500	65	3000	100	260	780	30	15
Field Visit	January and February 2009	February 2009	February and March 2010	July 2010	March 2010	April 2010	February 2010	n/a
Number of Interviews	19	11	12	10	12	6	11	2

Stage Four: Follow-up and Data Analysis

Following the field visits I engaged in extensive analysis of the data gathered at the field sites, though the process of data analysis has been ongoing since the first preliminary surveys were returned to me in July 2008. Interviews were transcribed, documents were analyzed, and four in-depth research cases were written to attempt to understand the innovation transfer process. I also followed-up via telephone and email with organizations to get updates on project activities as necessary. This allowed enough time to elapse for new data to be available, allowing me to examine how the innovation transfer process is unfolding over time. This process continued through June 2012.

Results

Prior work on multiple or conflicting logics in organizations has highlighted the role of a dominant logic or competing logics in guiding or constraining organizational action (Pache and Santos, 2010; Battilana and Dorado, 2010; Lounsbury, 2007). My findings show that these logics are broader and richer than scholars have previously considered. I also found that these logics impact on inter-organizational processes in particular ways.

There are three major findings. First of all, I found that social enterprises are not uniformly impacted by one or two dominant logics of action (e.g., a social logic and an economic logic). Rather, a rich set of logics, multiple in nature, impact their actions. For instance, while other scholars have focused on social and economic logics in the past, no study has thus far examined how spiritual logics can guide the actions of enterprises as they manage the partnership process. Activist logics have been discussed in the social movements literature (de Bakker and den Hond, 2008), but in this study they are examined in an emerging economy, India, where they haven't been looked at before. Equally, organizations impacted by a technology logic may also manage the partnership processes in a way that is distinct from what a broad "social" logic might predict. Finally, "high" and "low" forms of the economic logic were adopted by each of the eight organizations in this study.

Second, institutional logics channel and guide the process of knowledge transfer by impacting the micro-processes of knowledge transfer as they are enacted at the organizational level. These processes are historically informed, and also relate to how social enterprises manage their relationships with partners. Specifically, institutional logics can impact the way in which organizations incorporate different practices and innovations from partners.

Third, the impact of institutional logics on how relationships with partners are managed may be greater than the impact of cultural differences as they relate to the same processes.

Organizations' commitment to multiple logics

Recent work by Purdy and Gray (2009) has examined the conditions that encourage the persistence of multiple logics in a field. Among the factors proposed are multiple local contexts for practice diffusion (and thereby local adaptation) and the lack of a dominant, overarching regulatory or professional framework that is able to imposed field-level standards. Both these factors exist in varying degrees for the cases examined in this paper. As a result, the actions of organizational actors in both instances seem to be influenced by multiple logics, including some which have not been well-characterized before in the institutions literature.

In the first instance, the public health domain has led to the development of relatively distinct organizational models Gram Vikas and CRHP, as well as at Aravind and Fundación Visión. In this section I review the sources and origins of four broad categories of logics I was able to identify in the field: activist, spiritual, technical and economic logics.

At the level of social logics, I found the most variation between the organizations. That is, there was no "unique" social logic guiding the actions of the organizations in this this study. Rather, there were two broad categories of social logics. I found that Gram Vikas (the source organization in pair 1) was driven primarily by a social commitment grounded in the social activist tradition which gave birth to the organization in the late 1970s. I called this an "activist logic". For CRHP, as well as for the two organizations in the second pair, Aravind and Fundación Visión, I identified an underlying "spiritual logic" rooted in their own organizations' histories.

Finally, all of the organizations in this study were influenced, to differing degrees, by an economic logic. Consistent with theory in social entrepreneurship, this economic logic was embedded in the necessities of the sector in which the organizations operated, and were related to issues of operational efficiency and demand generation for the services that they provide. In addition, some organizations had a "strong" form of this economic logic impacting their actions, whereas others had a "weak" form.

However, my point of departure from prior work is in the way in which I found that economic logics and the three social logics mentioned above interact in the inter-organizational setting. Specifically, even when there was alignment between the strength of the economic logic for the two organizations in a dyad (e.g., strong-strong or weak-weak), if there was a clash at the level of social logics the partnership process didn't proceed smoothly. However, a mismatch between the strength of the economic logic between organizations in a pair (e.g., strong-weak) exacerbated already existing tensions at the level of social logic non-alignment. I describe the development of these logics below and identify some of their basic features in Table 4.

Table 4
Comparison of the Activist, Spiritual, Technology and Economic Logics

Characteristic	Social Logic - Activist	Social Logic - Spiritual	Social Logic - Technology	Economic Logic
Goals	Change undesirable social conditions through identifying and addressing root causes of problem	Relieve Suffering of beneficiaries while adhering to core religious principles	Improve human well-being by applying technology and know-how	Maximize surplus revenue through efficiency of operations
Target Population	Beneficiaries across class and caste levels, with a particular focus on the poorest of the poor and the most marginalized	Beneficiaries to be served, particularly the poor and marginalized	Populations to be served, including the poor but also entrepreneurs and other citizens	Clients to be served with a focus on efficiency and on generating demand for future interventions
Operational principles	Design interventions to change underlying unequal social structure	Design interventions to serve beneficiaries and to serve a "higher power"	Improve human life and conduct research and development to improve practices	Maximize surplus revenue through efficiency of operations and demand generation

Multiple logics and practice adoption

My case data suggest that source enterprises that enter into partnerships in order to increase the social impact of their innovations have developed strategies to ensure that their business models and innovations get scaled up. These strategies are deeply rooted in not only the process of scaling, but also the way different institutional logics at the source and target enterprise interact, and the extent to which the logics of the source enterprise and the target enterprises are aligned.

Additionally, data from the cases indicate that the source social enterprises actively manage their relationships using inter-related strategies related to the underlying balance between multiple institutional logics. These tactics can be broadly organized into one major process: maintaining innovation fidelity. In other words, the source enterprises attempt to maintain the fidelity of their original model or innovation at the target site to preserve the intended social impact. They achieve this goal through a number of tactics, including bargaining with managers at the target organization to adopt practices and techniques developed by the source entrepreneur to ensure that the success of the original model and innovation in its new locale. As described below, the process of maintaining innovation fidelity is related to separate aspects of the social enterprises' indirect ability to influence other organizations. This process enables source organizations with limited resources and a constrained direct ability to control of their partners' actions to exercise significant influence despite the absence of an ownership stake or even a principal-agent relationship at the target organization.

Geographic differences and transfer

Interestingly, the impact of cultural differences on the innovation transfer process was relatively muted compared to the institutional factors discussed above. Instead, what I found was that organizations tended to refer to geographic differences only with respect to actual or potential pitfalls in the transfer process; otherwise, the issue was for the most part in the background.

Discussion and conclusion

A number of scholars have called for research which highlights the distinctive nature of organizational processes in a social entrepreneurial context, where multiple institutional logics operate (Pache and Santos, 2010; Dacin et al, 2010; Dees, Anderson, and Wei-Skillern, 2004). My research addresses this call by examining how social enterprises manage partnerships with other organizations with different logics. It makes several contributions.

First, this work helps to illuminate the extent to which organizations which operate in environments with multiple institutional demands and with multi-dimensional goals manage their organizational processes and behaviors in order to achieve increased impact nationally and internationally (Dacin et al, 2010). By illuminating heretofore under-examined institutional logics, a spiritual logic and an activist logic, it provides opportunities for researchers to develop these concepts further.

Second, the paper highlights the tactics used by firms to manage knowledge transfer partnerships with partners that have different logics. For organizations with social goals, partnership is a means to "create social value" and indeed to spread the organization's key values to other organizations and locales. The organizational field plays a major role in shaping these values and the nature of the partnership (DiMaggio and Powell, 1983; Friedland and Alford, 1991; Thornton and Ocasio, 1999). Alignment of the source and target enterprises' values greatly facilities inter-organizational collaboration. When alignment isn't there, however, national cultural and institutional factors become more important in determining the direction and success of a partnership. While target organizations enter into the partnership initially to gain access to new technologies and resources, the values component becomes paramount in sustaining the partnership and making it valuable for both the source enterprise and the target organization. What emerges from the rich case data which constitute this study is that the form of inter-organizational partnership is influenced by the extent to which the source organization manages to balance its multiple logics with those of its partner.

Third, by situating institutional logics research in an inter-organizational setting, I begin to unpack the processes which emerge when the logics of different organizations have to be simultaneously considered. In doing this, I address the following questions: Are these mechanisms indeed different from knowledge transfer mechanisms studied by organizational scholars? How do partners in a dyadic transfer relationship coordinate their efforts and to what extent to they ensure the fidelity of the innovation is maintained across settings (Lounsbury, 2001; Ansari, Fiss, and Zajac, 2010)?

Finally, this research contributes to the nascent literature on “scaling” entrepreneurial innovations in social settings (Bloom and Chatterji, 2009; Dees et al, 2004). It does this by offering possible alternative views to the discussion on “scaling” in the social sector, a debate which has, to date, focused on “scaling organizations” as the primary means to expand the scope and reach of innovations developed by social entrepreneurs. By highlighting the possibility of instead “scaling solutions” (Dees et al, 2004) through inter-organizational partnership as a means to achieve similar impact, I described how organizations have a variety of options available in their toolkit to address the issue of increased impact. My research also defines some of the tactics used by social entrepreneurs to manage this process when it involves the transfer of an innovation to a partner organization.

The Herfindahl-Hirschman Index as an official statistic of business concentration: challenges and solutions

George Georgiev Djolov
Stellenbosch University

Abstract

This dissertation summary presents the main findings of an enquiry into whether the Herfindahl-Hirschman Index (HHI) is a reliable decision-making tool of business concentration. The statistical properties of the index are considered in order to facilitate an improved statistical decision-making with the index. A misinformed application of the HHI as to its statistical characteristics encourages questionable decisions about concentration and prospectively about competition. It also limits the use of the HHI to a descriptive concentration index. Understanding the statistical nature of the HHI reveals that there is more to this index than meets the eye.

1. Introduction

In many markets competition is a fact of daily business life. It commands the undivided attention of business executives, economists, and competition regulators, to name but a few. As part and parcel of this, anyone of these decision-makers is expected to scrutinise the Herfindahl-Hirschman Index (HHI) of business concentration. A notable editorial in *Business Week* (1998: 112) advised company executives that, "It would be nice if you could just watch your Herfindahls". In the same vein, *The Economist* (1998: 62) effused that the calculation of the HHI is a simple matter because, "The Herfindahl's great virtue is its simplicity". Even the authoritative *New Palgrave Dictionary of Economics and the Law* (2002 edition) considered the HHI to be the most practically relevant measure of business concentration. The United States Department of Justice and its Federal Trade Commission have affirmed it as their index of choice for determining the business concentration of markets (1997 [1992]: 15-17; 2010: 19). The European Union and its members have followed suit (European Union, 2004: 7). So too has South Africa (Competition Commission, 2009: 16, 18).

The interest in the HHI is understandable. As Andreosso and Jacobson (2005: 97) explain, it is a measure of the intensity of competition or of control. Introduced by Herfindahl (1955: 96, 98) and Hirschman (1964: 761), the HHI captures this intensity as the ratio of the squared coefficient of variation *plus* 1 divided by the number of observations, i.e. the number of firms in a market.

After 50-years of popular practice, Carlton and Israel (2010: 3) came to the somewhat disconcerting conclusion that there is no body of economic research that provides any theoretical basis for identifying what the HHI says about the magnitude of concentration. This is striking given the HHI is a measuring tool of the *intensity* of competition. Legions of decision-makers simply handle the index descriptively, as a point estimate void of relative scale. It does not take much to recognise that in such a case it is impossible to know whether the resultant HHI number is of such magnitude as to lead to a conclusion that there is intensity, or whether this intensity is small, or large enough to matter, in the sense of being able to determine its effect on competition. Mandelbrot (1997: 215-216) was aware of this problem, noting that under such a situation:

> "This index has no independent motivation, and … it is odd that it should ever be mentioned in the literature, even solely to be criticised because it is an example of inconsiderate injection of a sample of second moment in a context where … the existence of expectation is controversial. …According to reports, Herfindahl's index is taken seriously in some publications. This is hard to believe."

Simply stated, Mandelbrot's critique subtly points out that the shortcomings of the HHI stem from its formulation neglecting the Glasser inequality for the Gini index. In response the existing formulation of the HHI not only foregoes the robust estimation of business concentration, it also creates – unless revised – misperceptions that as an index of concentration, the HHI lacks formal connection to the concentration, i.e. Lorenz curve, apart from also having no formal statistical decision-making abilities.

But by acting on Mandelbrot's criticism, statistical theory can in fact contribute to what has so far eluded economic theory and practice.

2. Robust estimation of business concentration

As a well-known result of mathematical statistics, the Glasser inequality simply states that the Gini index is asymptotically equal to the coefficient of variation (Glasser, 1962: 652-653; Piesch, 2005: 264). Furthermore as the 2009 edition of the *Oxford Concise Dictionary of Mathematics* reminds, an asymptotic equality is by mathematical convention treated like an equality. The practical implications of this for the HHI soon emerge.

By formulation this index has the coefficient of variation as a key ingredient. As Bronk (1979: 665), Hürlimann (1998: 128), and Iglewicz (1983: 404-411) have emphasised, there is a general agreement that this measure of relative variability is appropriate only for normal, or approximately normal distributions. A stark reminder of this is provided by Geary's famous finding that in practice (Geary, 1947: 241):

> "normality is a myth; there never was, and never will be, a normal distribution".

Tomkins (2004: 24, 26) cites five other empirical investigations done between 1971 and 2004 that corroborate Geary's finding. In the present case there is persistent evidence showing a parallel picture. Gibrat (1931 [1957]: 53) was among the first to point out that in most cases, particularly in the field of economics, distributions are not symmetrical but skew. More recently, Axtel (2001: 1819-1820), as well as Gaffeo et al. (2003: 119-121) also found that generally firms' market shares have a positively skewed distribution, which is unimodal, i.e. with a single peak, that may also include extreme observations depending on how large the market share gap is between the top and bottom firms. The alternative or accurate measure of relative variability under such conditions is the well-known Gini index (G). This is not unexpected considering that the two best known measures of relative variability are the coefficient of variation and the Gini index. So if we cannot make use of the former we would gravitate to the latter. The Glasser inequality tells us why.

Because the ratio between the Gini index and the coefficient of variation converges to 1 as the number of observations increases, both measures of relative variability begin to behave alike as the number of observations grows. It is known that this occurs with 25-or more observations. By contrast, when few observations are encountered, as when their count falls below 25, the coefficient of variation will be a biased measure of relative variability – yielding consistently inflated estimates – when compared to the Gini index. By extension this spills-over into the HHI given its direct proportionality to the coefficient of variation.

In essence the Glasser inequality exposes the otherwise hidden dilemma in the conventional formulation of the HHI where the robust estimation of relative variability is simply assumed away. It is in this sense that the index is inconsiderately injected with the wrong measure of relative variability. There are many explanations of what robustness is but a neat and handy one is that provided by Morgenthaler (2007: 272, 277-278), to the effect that it is the property of an estimator to retain its accuracy when the ideal conditions for which it is designed begin to disappear or no longer exist. In practice this is achieved by making such an estimator from the ranks, range, median, median absolute deviation, inter-quartile range, or any such quantity of the data, that can evade outliers and skewed distributions. It is customary to refer to such an estimator as non-parametric to differentiate it from a parametric one, which is not composed of such quantities. While clearly the coefficient of variation is not a robust estimator of relative variability, by contrast the Gini index is such an estimator. By construction it includes the ranks of the data. We are easily reminded of this when we recall that the Gini index is the ratio of the doubled covariance of the observation values with their ranks divided by the product of their number with their mean (Olkin and Yitzhaki, 1991: 385).

Generally, as Tomkins (2006: 25) reminds, a robust estimator should be used when the data conditions are imperfect. This is when:

a) The distribution of the observations is non-symmetrical;

b) The distribution has outliers;

c) The number of observations is few; and lastly

d) There is considerable variation among the observations at hand.

The converses of the aforementioned are known as perfect data conditions. The crux of Geary's finding is that in practice coming across such conditions is the exception rather than the norm. In this case the choice of the measure that can accurately detect relative variability is relevant. This is at the heart of the Glasser inequality, and of course of Mandelbrot's criticism. If we want robustness, we have to choose the Gini index. Following Tomkin's advice we could make this choice based on whether the data conditions are imperfect. But there is no need to. This is because the robust estimator is accurate even if data conditions are perfect (Croux and Filzmoser, 2007: 282). A diverse and multidisciplinary collection of empirical evidence from 1931 to date assembled and surveyed by Morgenthaler (2007: 272-278) shows this being systematically confirmed. Another collection of evidence from 1970 to date is referred to in Tomkins (2006: 24-25). To this list of studies we may also add that of Stigler (2010: 277-278) confirming the same. The gist from all of these studies is that, as a matter of principle, robust estimators keep their accuracy irrespective of the data conditions they are exposed to. Morgenthaler's explanation of what is robustness makes it easy to understand why. If by design robust estimators are accurate under imperfect data conditions, then just because these conditions disappear it does not mean that their accuracy disappears. It stays. Instead it is the data conditions that change. We too have confirmation of this in our present case by virtue of the equality between the Gini index and the coefficient of variation. This immediately implies that to measure business concentration accurately with the HHI, we have to revise the latter's formulation by replacing the coefficient of variation with the Gini index. So instead of having the squared coefficient of variation present in the numerator of the HHI, we now have the squared Gini index in its place. This has three clear consequences, as we will see next.

3. Consequences

Firstly, reformulating the HHI with respect to the Gini index introduces a consequential improvement in its accuracy. The point simply is that if we formulate the HHI in terms of the Gini index it will then not inflate or overstate the measurement of business concentration irrespective of the data conditions or the number of observations encountered. Resultantly the HHI becomes a robust estimator of business concentration – based on the fact that it too now includes the ranks of the observations – in the same way that robustness exists in the Gini index. As the Gini index is a robust estimator of relative variability, by analogy, it imparts the same on the HHI.

Secondly, because the HHI is a variant of the Gini index, by mere rearrangement the latter becomes an amended version of the HHI. Accordingly, the Gini index can be also depicted as the square root of the product of the number of observations and the HHI subtracted from 1. So not only is a new formula for the HHI obtained, but at the same time we also get a new formula for the Gini index. This alternative depiction enables us to recognise that the HHI replicates the symmetry of the Gini index on both sides of the Lorenz curve, which reaffirms the connection between the two. But in economic theory things currently are inexplicably different. For example the 2006 edition of the Collins Dictionary of Economics notes that:

> "Concentration measures, like…the Herfindahl index, are known as absolute concentration measures since they are concerned with the market shares of a given (absolute) number of firms. By contrast, relative concentration measures are concerned with inequalities in the share of total firms producing for the market. Such irregularities can be recorded in the form of a Lorenz curve."

In short, the presumed disconnection between the Lorenz curve and the HHI is just not true.

Thirdly, the reformulation of the HHI in terms of the Gini index preserves the Chi-square distribution as its sampling distribution, as well as its abilities to serve as a reliable statistic and a test procedure for business concentration. The subtlety of this point has to do with the nature of the sampling distribution of the coefficient of variation and/or the Gini index.

The exact probability distribution of the sample coefficient of variation is unknown except that whatever this distribution is, its shape is positively skewed (Hwang and Lin, 2000: 135). Acting on this knowledge, McKay (1932: 697-698) proposed that the sampling distribution of the coefficient of variation can be approximated by the Chi-square distribution with degrees of freedom given by the number of observations less 1.

McKay's proposal is readily understandable - the Chi-square distribution is positively skewed and so a natural contender for the sampling distribution of the coefficient of variation. On Egon Pearson's advice (1932: 703), Fieller (1932: 699) replicated McKay's proposed approximation, and came to the conclusion that "…the approximation…is… quite adequate for any practical purpose". Pearson (1932: 703) followed up with another independent assessment likewise reaching the same conclusion. Iglewicz and Myers (1970: 167-169) continued re-evaluating McKay's approximation finding what McKay, Fieller, and Pearson before them had already found. There have been more studies that have confirmed this finding, including most recently those by George and Kibria (2012: 1226-1234, 1239), and Gulhar et al. (2012: 48-50; 55-58, 61). The gist of these various studies is that, irrespective of the distribution of the data, McKay's approximation is reliable in terms of both accuracy and simplicity.

Furthermore, the probability distribution of the sample Gini index is also unknown except for knowing that its shape is unimodal and positively-skewed (McDonald, 1981: 168-169). This again makes the Chi-square distribution a natural contender. Gerstenkorn and Gerstenkorn (2003: 470-471) report that Kamat (1953: 452; 1961: 170, 172-174) and Ramasubban (1956: 120-121; 1959: 223) have exploited this to show that, like the coefficient of variation, the sampling distribution of the Gini index is approximated by the Chi-square distribution. But neither Kamat (1953: 452; 1961: 173-174) nor Ramasubban (1956: 120-121; 1959: 223) explained why they found the Chi-square distribution to be a reliable approximation for the sampling distribution of the Gini index, except to emphasise that it is an empirical regularity.

Of course from the Glasser inequality, we know that both the Gini index and the coefficient of variation are directly proportional to each other. By extension it follows that both will have the same approximate sampling distribution.

In practice McKay's approximation is computed from McKay's original confidence interval and/or from McKay's modified confidence interval. Vangel (1996: 25) finds that the computations from the modified McKay confidence interval differ from the original McKay confidence interval only in the fourth decimal place. So up to the third digit after the decimal their computed values are found to be the same. More importantly however, because of the equality between the Gini index and the coefficient of variation, McKay's confidence intervals, are immediately extendable to the Gini index, and by analogy to the HHI. Expressed with respect to the HHI, McKay's original confidence interval is:

$$\Lambda_1^{HHI} = \left(\frac{\sqrt{nHHI-1}}{\sqrt{\left|(nHHI-1)\bullet\left(\frac{X_u^2}{n}-1\right)\right| + \frac{X_u^2}{n-1}}}, \frac{\sqrt{nHHI-1}}{\sqrt{\left|(nHHI-1)\bullet\left(\frac{X_l^2}{n}-1\right)\right| + \frac{X_l^2}{n-1}}} \right)$$

(1)

In turn, the corresponding modified McKay confidence interval is given by:

$$\Lambda_2^{HHI} = \left(\frac{\sqrt{nHHI-1}}{\sqrt{\left|(nHHI-1)\bullet\left(\frac{2+X_u^2}{n}-1\right)\right| + \frac{X_u^2}{n-1}}}, \frac{\sqrt{nHHI-1}}{\sqrt{\left|(nHHI-1)\bullet\left(\frac{2+X_l^2}{n}-1\right)\right| + \frac{X_l^2}{n-1}}} \right)$$

(2)

In both expressions, n is the number of observations, and the Chi-square values respectively denote the lower (l) and upper (u) critical values from the Chi-square distribution.

The existence of these intervals, or the prospect of readily deriving them, makes it easy to understand why their non-reporting is an omission of evidence, and why when that occurs as Mandelbrot warns the HHI should not be taken seriously, or rather should be treated as something that is hard to believe. Quite! In all such cases we can tell nothing about its magnitude while purportedly it measures the intensity of competition. The confidence intervals for the HHI change this.

More importantly the statistical decision-making framework of the HHI, which has so far eluded economic theory and practice, is not so elusive anymore. The HHI is a formal statistical decision-making tool connected to the Chi-square distribution. Knowing this, the approach to using and calculating the index must evolve. It is no longer necessary to be assumed that the index has a single value, since the range of all its possible values can be determined – which implies useful testing applications for confirmatory and exploratory theories of business concentration whatever these might be. For illustrative purposes, that would reveal the consequences of reformulating the HHI, one such testing possibility is considered next. It draws on the South African banking industry as an example.

4. Illustration

In 2008, the South African competition authorities – The Competition Commission – launched an enquiry into the South African banking industry, which lead to the Commission publishing its assessment of the industry in the *Banking Enquiry Report*. Reasoning in a traditional economic manner according to the structure-conduct-performance paradigm, the Commission's enquiry panel held that in general, high concentration retards the intensity of competition when in the limit, where concentration is at its highest, there is no intensity to competition. Then there is only a monopoly, or a situation of near-monopolies, where competition does not exist. Conversely the opposite holds under low concentration. In an extension of this thinking, the Commission's enquiry panel (*Banking Enquiry Report*, 2008: 36-37) suggested that the relevant threshold as to whether an industry is highly concentrated is whether the HHI is close to 100%, since in accordance with economic theory, at such HHI values, a market is dominated by one large firm or alternatively by firms that act like near-monopolies.

Relating its thinking to the banking industry, the Commission's enquiry panel concluded (*Banking Enquiry Report*, 2008: 53-54) that the South African banking industry is highly concentrated because it is characterised by near-monopolies, the presence of which works against a highly intensive competition in the industry. In response, it was advised that any intended mergers and acquisitions between close "competitors" are prone to make the industry anti-competitive and should be considered by the Commission as undesirable. This conclusion was arrived at by referral to the market share distribution of the firms defining the banking industry in terms of their value. These shares are reproduced in Table 1, together with the HHI values from the coefficient of variation and Gini index versions respectively. In addition, the table also contains the original McKay and modified McKay confidence intervals for the *Gini-based* HHI at the 95% confidence level with 4 degrees of freedom.

Table 1: Firms' market share by turnover in the South African banking industry

Firms	*Market share, %*	*Rank (worst to best performing firm)*
FIRM A	4.49	1
FIRM B	20.31	2
FIRM C	24.87	3
FIRM D	25.00	4
FIRM E	25.33	5
TOTAL	**100.00**	
HHI – based on coefficient of variation, %	23.97%	
HHI – based on Gini index, %	20.69%	
Original McKay confidence interval, %	(11.04% , 49.38%)	
Modified McKay confidence interval, %	(11.02% , 51.97%)	

An examination of the results in Table 1 firstly confirms the existence of the Glasser inequality, namely that under imperfect data conditions, the HHI by the coefficient of variation produces higher estimates of concentration relative to the HHI by the Gini index. When rounded off to the nearest first digit, the former overstates the existing market concentration by 16% compared to the latter. We should note that this finding is specific to the current situation because the Glasser inequality merely stipulates that there will be a difference under imperfect data conditions. It does not tell what its actual magnitude will be, indicating that it will vary from one situation to the next.

Secondly, the statistical testing framework of the HHI by the McKay confidence intervals allows to test claims of what concentration is prevalent. Generally, to do so we have to decide on a confidence level, and there are a number of conventional levels in this regard. Whichever is chosen, it is important to keep in mind that there is nothing magical to them. They are merely statistical conventions about the role of chance we are prepared to give in the analysis of data, and the conclusions that flow from it. Thus, whether we end up with a 90% confidence level, a 95% confidence level, or a 99% confidence level, will not answer whether logically the finding from an analysis makes any sense, or whether it is practically significant by being useful in the real world. To answer the first question is always dependent on context knowledge as relates to the subject matter to which the statistical enquiry is applied. To answer the second question is always a matter of professional judgment, which need not even be informed by statistical analysis. However this would be imprudent as while statistical analysis does not prescribe decisions, it does inform decision-making. For instance, in the current situation, the possibility of hypothesis testing with the HHI can assist with probing the prudence of the described economic reasoning.

Recall that in the present case high concentration is deemed to exist if the HHI is close to 100%. While the Commission's enquiry panel did not indicate what is the exact HHI number that should be close to 100%, let's say that 95% is a number compatible with such closeness. Then in effect the enquiry panel has conducted a hypothesis test for high concentration in terms of which the null hypothesis is that the HHI is equal to 95%, versus the alternative hypothesis that the HHI is different from 95%, the meaning of the latter as per the panel's outlined economic thinking being that there is no high concentration. For illustrative purposes this is tested through the original McKay and modified McKay confidence intervals at the 95% confidence level with 4 degrees of freedom. As the results of the confidence intervals in Table 1 show, none of the intervals contain the null hypothesis value or any such number that is close to 100%, indicating of course that the hypothesis of high concentration should be rejected. In short there is actually no evidence of high concentration in the banking industry and there is a 95% chance in the correctness of this conclusion, bar a 5% possibility of being wrong. Thus, it is questionable whether the Commission's enquiry panel applied the HHI appropriately in reaching the conclusion that the intensity of competition in the South African banking industry is stymied due to high concentration. The HHI statistical significance test actually suggests otherwise. The test also suggests that it is questionable whether intended mergers and acquisitions in the industry should be viewed as prospectively anti-competitive, considering that there is nothing in the plausible range limits of the HHI that comes close to the HHI's monopoly value of 100%.

With the illustration completed, what is left is to recap the outlined summary of the dissertation.

5. Conclusion

The decision-making importance of the Herfindahl-Hirschman Index (HHI) in the measurement of business concentration is undoubted. In contributing to an improved understanding of what this involves, the storyline of this summary, as that of the dissertation itself, has been to show and emphasize the following points:

a) The coefficient of variation is asymptotically equal to the Gini index;

b) As a result of this equality a Gini version of the HHI is constructed by replacing the coefficient of variation with the Gini index in the original formulation of the HHI;

c) The reformulation of the HHI in terms of the Gini index is a significant improvement on the regular HHI because it contains an unbiased measure of relative variability in terms of the Gini index, apart from revealing the connection of the HHI to the concentration curve;

d) Thus under skewed market share distributions prospective overstatement of the levels of business concentration is eliminated, while anyhow these levels remain accurately detected when, in the rare practical cases, the distributions are normal or symmetrical;

e) The reformulation of the HHI in terms of the Gini index preserves the Chi-square distribution as its sampling distribution, as well as its abilities to serve as a reliable statistic and a test procedure for business concentration;

f) In light of Mandelbrot's critique, revising the HHI in terms of the Gini index is not optional. It is necessary if the HHI is to have a reputation as a reliable index of business concentration.; and lastly

g) Re-expressed in terms of the Gini index, the HHI warrants a more elevated status as a statistic that is prudently used in the analysis of business concentration.

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Change and Continuity in Women's Work-Family Preferences and Choices in Cyprus

Christina Ierodiakonou
University of Leeds

Abstract

The thesis explores women's work-family preferences and decisions in an under-explored southern European context. I analysed socio-biographical interviews from a diverse sample of Cypriot women and identified historically-located birth cohorts to contextualise biographies and understand social change. I theorised and developed novel typologies of women's work-family preferences and trajectories that contribute to debates about structure and agency, choice and constraint, gender relations and the welfare state. Ultimately, I provide an application of the morphogenetic approach and propose a comprehensive framework to understand women's work-family preferences and behaviours that overcomes limitations of previous theorisations and moves relevant sociological debates forward.

1. Introduction

The main purpose of this thesis was to identify the factors that influence women's work-family preferences and tease out tensions between agency and structure in women's decisions to eventually interrogate dominant sociological theories pertaining to women, work and family. I argued that Cyprus is an interesting case to apply and adapt these theories thus moving forward our understanding on how the distinctive southern European context affects women's work-family options. I used a novel methodology of historically specific cohorts and collected socio-biographical interview data from Cypriot women across three birth cohorts. I analysed and interpreted interviews through a critical realist approach to critically evaluate preference theory arguments concerning the centrality of preferences in women's chosen lifestyles. Specifically, I addressed the following under-explored questions:

1. To what extent do women perceive different contextual dimensions as constraining or enabling and how do these perceptions change across birth cohorts?

2. Which factors contribute in the shaping and changing of women’s work-family preferences and how does the relative impact of these factors change across birth cohorts?

3. Which are the key influences on women’s work-family trajectories and how does their relative impact change across birth cohorts?

In addressing these questions, I demonstrate that preference theory is an inadequate framework to explain women’s work-family behaviour and propose alternative conceptualisations of preferences, transitions and trajectories that integrate both structure and agency and incorporate aspects of social change. In what follows, I provide a synopsis of the main theories that inform the thesis, summarise the study’s contextual background and discuss the methodological approach used to collect and analyse data. Finally, I summarise the main findings, conclusions and implications of the thesis.

2. Theoretical Framework

The theoretical substantiation of the thesis comes from different streams of literature pertinent to women, work and family. First, I reviewed theories on the relationship between agency and structure. Though mainly theoretical, these debates provide useful insights for empirical research on how individuals use their agency in given contexts. Particularly relevant to this study is Archer’s (1982) morphogenetic approach that views structure and agency as interconnected yet distinctive and existing at different time intervals. Agreeing with Archer in that structure predates agency and that analytical dualism is useful for exploring these concepts, I explored the influences of structure and agency on women’s work-family preferences and choices separately before exploring their dynamic interactions; I explored structural context first. Adopting the principles of Archer’s theorisation, this exploration acknowledged the differing degrees of structural malleability and power of agents and explored how different degrees of structural transformation influence the actions of agents over historical time. This temporal dimension led to the incorporation of historical and cultural aspects into the analysis (Emirbayer & Mische, 1998). Endorsing Giddens’ (1984) argument that structures are both constraining and enabling, I explored how structure-agency dynamics change over time and affect women’s decisions.

One of my main purposes here was to evaluate whether women become better able to act as ‘individualised individuals’ over time (Beck & Beck-Gernsheim, 2005). My theoretical framework therefore incorporated theories on women’s work-family choices, focusing primarily on preference theory (Hakim, 2000, 2003, 2004) and the debates developed around it (see for example, Fagan, 2001; McRae, 2003; Tomlinson, 2006). I developed a comprehensive critique of preference theory and concluded that, contrary to Hakim's assertions, preferences may influence but they do not determine women's work-family decisions. Further, I identified important gaps in our knowledge. First, the concept of 'preference' has been insufficiently theorised and empirically explored. Second, most studies on women's work-family behaviour focus in the UK, use samples of employed mothers and explore work-family transitions at one point in time.

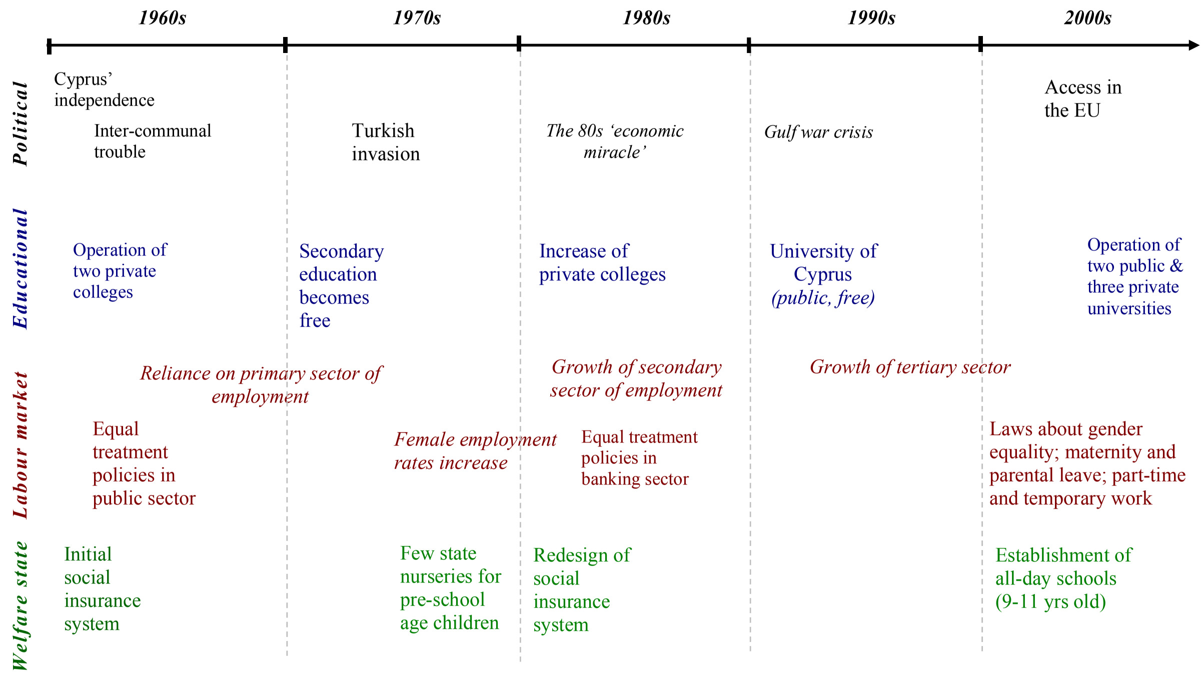
To address these gaps, I elaborated the thesis' framework with two theoretical perspectives central to explaining women's employment options. First, I focused on theories of gender relations, which aim to explain the causes and outcomes of women's subordination. Utilising Walby's (1990) theorisation of patriarchy and gender transformations, I argued that patriarchy is a system comprised of structures that are real, pre-exist agents, vary in power and change over time. As such, patriarchal structures influence the ability of women to act out their work-family preferences.

Since 'welfare states are centrally implicated in gender relations' (Daly, 2000, p. 43), I then turned to the welfare states literature, focusing on research concerning welfare regimes and gender (see for example, Esping-Andersen, 1990; Lewis, 1992; Sainsbury, 2001). Theories of the welfare state highlight that existing institutional structures influence women's work-family options and decisions and therefore provide a useful framework for placing individual agency within the broader context. I argued that the southern European welfare regime is distinctive but under-explored and that in Cyprus in particular, we know nothing about women's work-family behaviour. My thesis addresses this need for further research in the southern European regime to enrich relevant sociological understandings.

3. Contextual Framework

Considering Archer's (1982) argument that structure pre-exists agency, a thorough understanding of the context within which social action occurs is important. To provide the contextual framework of the thesis, I used an innovative methodology and conducted a comprehensive analysis of institutional developments in Cyprus along four dimensions: political and economic context, education, labour market and welfare state system. Based on this analysis, I developed the novel historical line shown in Figure 1 and used it to place Cyprus, for the first time, in the welfare state regimes literature as a member of the southern welfare state regime. Furthermore, I argued that Cyprus constitutes an interesting context for exploring women's work-family decisions, thus enhancing knowledge concerning the effects of structures on women's agency.

Figure 1: Historical Line: Socio-Structural Developments in Cyprus



This innovative approach to mapping institutional developments through historical time to capture aspects of social change in new research contexts indicated three distinctive 'periods' in Cyprus. The 1960s-1970s were characterised by political turbulence, minimal educational opportunities and welfare provisions, reliance on agriculture and low female employment rates. National reconstruction after the 1974 Turkish invasion led to the second period (1980s to mid-1990s). This was characterised by the growth of industrial and services sectors, women's penetration into the labour market, the development of some higher education and childcare institutions and the continuing limited welfare provisions. In the mid-1990s, the erosion of the industry sector, creation of a services-oriented labour market and expansion of educational structures marked the beginning of a new 'period'. Viewing institutional development through historical time and marking it with critical occurrences brought aspects of change and continuity to attention. Following Hakim's (2000) view of 'modernisation' through the new scenario, this analysis suggested that Cyprus is a modernising country and as such can serve as a case to test preference theory arguments in new contexts (Hakim, 2003).

4. Research Methodology and Design

To address research questions, I adopted critical realism as a guiding philosophy (Archer, 1998). Despite criticisms and debates (see for example, Cruickshank, 2004; Walters & Young, 2005), critical realism is useful to understand social action because it emphasises 'structural contextualization' (Reed, 1997, p. 32): incorporating structure and agency in social explorations to understand the deeper causes of social change. A qualitative research approach, specifically socio-biographical interviewing, was used to collect, analyse and interpret data. Socio-biographical interviews enable a double focus on agency and structure, therefore allowing researchers to provide context and meaning to the investigated phenomena (Miller, 2000).

The population of the thesis included Cypriot women across three birth cohorts. I attracted volunteers and conducted interviews with forty women in 2008. Participants were purposively chosen through a selective sampling process (Miller, 2000) that ensured that women across familial, employment and class statuses were represented in the final sample. Such a diverse sample composition is uncommon in the relevant literature since most studies exclude women outside the labour market and/or without children. Nonetheless, this notable innovation in research design enabled me to explore intra-cohort variation and enhance knowledge on the factors that affect the preferences and decisions of different groups of women. In turn, the thesis adds to a relatively small body of research that uses diverse samples to allow for the heterogeneity of women's preferences and choices to unravel.

In the sampling process, I used women's birth cohort as an essential theoretical category. Although cohorts are useful to study social change (Ryder, 1965), few researchers have used them to relate social change to women's work-family options (Solera, 2008). I used the unique historical line developed for the thesis' contextual framework to identify three historically-located and distinctive cohorts. Birth year was the cohort differentiator, but I considered the context prevailing about twenty years after birth, when women left formal schooling and started making work-family decisions.

Women in each of the identified cohorts made their work-family decisions in the three distinctive periods described in section 3. Women in the 1945-1960 birth cohort made initial decisions between 1965 and 1980. Those in the 1961-1975 cohort made decisions during the 1980s and early 1990s; the new cohort that enters the political stream upon the war represents a potential for change (Ryder, 1965). Finally, women in the 1976-1984 birth cohort made initial decisions in the late 1990s and early 2000s, in a context of increased educational and employment opportunities. Notably, the boundaries of cohorts are not cross-cut in absolute terms (Ryder, 1965), but each cohort was clearly located in a different context to appreciate the influence of different institutions on individual choices. The use of theoretically substantiated birth cohorts represents a methodological innovation in the field that could be used to explore social change and challenge different perspectives of modernisation.

The majority of participants (22) in this study belonged in the youngest birth cohort, while the rest were equally separated between the two older birth cohorts. Since it was possible to identify more childless women in the youngest cohort, a larger number of younger participants was selected to ensure the representation of this group. It was also important to ensure representation across social classes (Crompton, 2006, 2010). Therefore, I used parental education, parental occupation and family wealth as indicators to categorise participants in four socioeconomic background categories and used these groups to explore intra-cohort variations based on class.

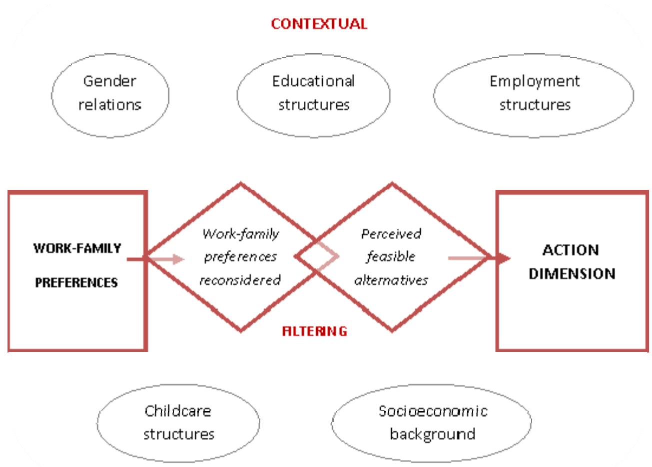
To conduct the interviews, a Topic Guide was prepared, pilot tested and revised throughout data collection (Atkinson, 1998). I organised the Guide around main life stages: childhood/ socialisation; education; employment; marriage; motherhood; and future plans. During the interviews, I invited participants to tell their life story; upon the first uninterrupted narration, I used the Guide to get more detailed narrations on issues of interest. As opposed to most researchers that explore women's work-family transitions around a specific life event, typically child-bearing (Houston & Marks, 2003; Tomlinson, 2006), I explored trajectories that emerge over long periods of women's lives. This represents a significant methodological contribution because more complete trajectory information provides insights into the interplay of agency and structure over biographical time. Moreover, allowing women to tell their complete life stories led to the identification of context-specific influencing factors on their preferences and decisions. In turn, I could move beyond relevant theories and offer additional explanations concerning the dimensions that contribute in the shaping of women's work-family trajectories in southern European contexts.

To analyse and interpret data, I prepared full transcriptions and one-page summaries for each interview. Then, I developed the chronological 'life maps' of participants (Thomson & Holland, 2002) and systematically compared individual trajectories to develop typologies (Murard, 2002). To theoretically relate individual and group biographies to the broader context, I then turned to the study's theoretical and contextual frameworks and identified relevant analytical themes. Throughout the process of attracting and selecting volunteers, analysing, interpreting, storing and using data, attention was given to ethical issues (Atkinson, 1998; Miller, 2000).

5. Women's Work-Family Preferences and Choices in Context

To address the three research questions of the thesis, I collected and analysed data from women across three birth cohorts. Figure 2 shows how I have organised the data into a conceptual framework that combines agency and structure in a holistic view of women's work-family choices. In this framework, preferences are not equalised to behaviour, as per preference theory. Instead, context overarches and mediates the preferences-to-action process to explicate Archer's (1982) morphogenetic argument that structure precedes agency. Figure 2 essentially shows my 'intellectual puzzle'; answering each research question focuses on a different piece of the puzzle.

Figure 2: Data analysis Framework



My first question was *to what extent women perceived different contextual dimensions as constraining or enabling and how these perceptions changed across birth cohorts?* Drawing from my interview data, I adapted McRae's (2003) work and discussed context in terms of normative and structural dimensions. Participants in this study perceived four dimensions as influential on their work-family choices: gender relations; educational; employment; and childcare structures. The degree to which each structure was perceived as constraining or enabling varied across and within birth cohorts.

Women in the 1945-1960 cohort generally perceived all four contextual dimensions as primarily constraining, but gender relations, and particularly ideals and practices entailed in a predominant private form of patriarchy, were considered as the most powerful constraint. For women in the 1961-1975 birth cohort, the Turkish invasion was a milestone because it instigated shifts in patriarchal notions and sequentially improved their opportunities to access education and paid work. Nonetheless, the degree to which women could take advantage of these opportunities was highly dependent on socioeconomic background. For women in the youngest 1976-1984 cohort, employment structures appeared to entail properties highly resistant to change and represented their most constraining aspect of institutional context.

Overall, the degree to which participants perceived contextual dimensions as constraining or enabling varied across historical time: all dimensions had an impact but their relative importance changed over time. The narratives of participants therefore portrayed a society in transition. Although gender relations and educational structures had become more enabling, employment and childcare structures remained, despite changes, considerably constraining. Although within each birth cohort the power of structures was mitigated by individual factors, especially socioeconomic background, the overall effect was that women's options remained limited.

This analysis of institutional context in Cyprus constitutes one of the few applications of Archer's (Archer, 1982) morphogenetic approach. By positioning women's biographies within specific historical contexts, I conceptualised social change in terms of smaller and larger cycles of structural elaboration and reinforced the view of structures as emergent properties by explicating how the actions of individuals at one point in time influence the options of future actors.

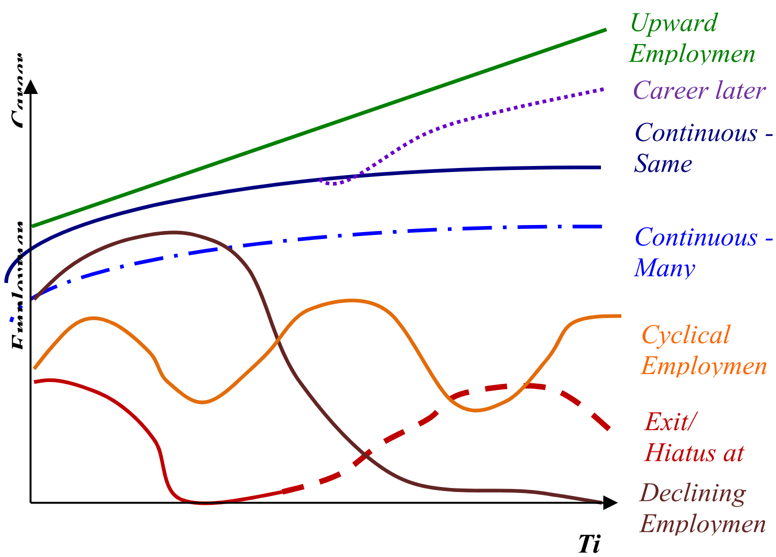
I then asked *which factors contribute in the shaping and changing of women's work-family preferences and how their relative impact changed across birth cohorts?* To address this question, I engaged with and elaborated Fagan's (2001) framework through insights from my interview data. I conceptualised women's work-family preferences as the combined outcome of four interlocking factors: individual orientations; prevailing social values; individual evaluations of structures; and individual socioeconomic background. Upon preference development, any changes in these factors led to changes in preferences over biographical time, suggesting that preferences are dynamic. The dynamic nature of women's preferences has been previously acknowledged (e.g. Fagan, 2001), but extant studies have not identified transition points in women's preferences over long periods of their lives. The research design of this study enabled the identification of such transition points, thus contributing to the limited theorisation of the notion of 'preference' in work-family research. Specifically, in my sample, transitions in women's preferences were primarily driven by ageing/ maturity, life events and experience with structures.

This conceptualisation of preferences is one of the thesis' main theoretical contributions. The concept of preference has been largely neglected and inadequately theorised in work-family research, thus knowledge on the factors that affect preference development and change is limited. I reintroduce the concept of preference in the analysis and offer a dynamic conceptualisation of preferences as outcomes of interlocking factors associated with both the individual and the social. Based on this conceptualisation, I distinguished participants into those with a family preference, balancers, maximisers, women with a job preference and women with a career preference. Unlike previous attempts to develop typologies of preferences or orientations, the typology offered here captures the relative importance of work and family in women's identities, does not equalise continuous employment with prioritisation of work over family and distinguishes between career and non-career aspirations. It is therefore a comprehensive approach to understanding the work-family preferences of women.

I explored preference types across birth cohorts and found that women's preferences are typically 'accommodated' (Gash, 2008): they are filtered through evaluations of the context within which they are developed. Women in the 1945-1960 cohort were primarily influenced by patriarchal values and invariably included family in and excluded career from their preferences. Women in the 1961-1975 cohort perceived they could include employment in their preferences, but socioeconomic background influenced their evaluations of structures. Therefore, only higher social class women included career advancement in their preferences. Finally, the preferences of women in the 1976-1984 cohort were primarily influenced by evaluations of employment structures. They typically preferred continuous employment but few preferred career advancement: despite their educational qualifications, employment structures constituted this an unattainable preference for most. In all, I found that women's preferences are socially and historically embedded.

Finally, I asked which are the key influences on women's work-family trajectories and how has their relative impact changed across birth cohorts? I argued that work-family transitions may have individual or contextual causes and distinguished between three types of transitions that entail choice and constraint to varying degrees: voluntary, involuntary and compromised choice transitions (Fouad & Bynner, 2008; Tomlinson, 2006). I then looked at the patterns that emerged through the transitions women made over their lives and adapted Hynes and Clarkberg's (2005) approach to perform a qualitative group-based trajectory analysis. I developed a typology of six work-family trajectories for women in Cyprus: three continuous employment patterns (same employer, many employers, upward employment) and three intermittent employment patterns (declining employment, exit/hiatus at birth, cyclical employment). These are graphically presented in Figure 3 (numbers in parentheses show the number of participants on each trajectory).

Figure 3: Participant's Work – Family Trajectories



With this typology, I add to the large body of literature that focuses on women's work-family behaviour. Though most studies criticise preference theory for being excessively voluntaristic, alternative typologies of women's trajectories are limited. My typology of work-family trajectories acknowledges different types of work-family transitions and identifies patterns that emerge over long periods of women's lives. Moreover, it is context-specific and explicates that typologies developed in westernised contexts do not necessarily reflect the options available to women in southern Europe.

Looking at the factors that shape women's work-family trajectories, I found that both individual and contextual effects were in play. Individual factors included women's socioeconomic background and partner income and attitudes. Contextual effects included gender relations, educational, employment and childcare structures. Individual factors remained influential over time and caused intra-cohort variability, but the relative importance of contextual factors changed through historical time. The work-family trajectories of women in the 1945-1960 cohort mainly reflected gender relations effects, of women in the 1961-1975 cohort employment structures effects strongly mediated by socioeconomic background and of women in the 1976-1984 cohort the effects of employment structures.

I concluded that women's agency remains constrained by structures. No evidence emerged that women's work-family trajectories become individualised over time. Young women were less affected by patriarchal values and ideals, but former social norms operating through class, gender and family relationships did not appear to erode. Opportunities have grown, but young women did not perceive having a greater degree of choice to act out their preferences. Women's socioeconomic background, rather than birth cohort, emerged as a significant differentiator between those whose trajectories were closer to preferences and those who significantly deviated from their preferences.

6. Conclusions and Implications

This thesis explored the work-family preferences and decisions of women in Cyprus to challenge and contribute to theories of structure and agency, choice and constraint, gender relations and the welfare state. Through the analysis of socio-biographical interviews with women across three birth cohorts, the thesis generally concludes that women's work-family preferences and decisions are contextually embedded. In the context of the specific study, women's options appeared to have increased, allowing women's participation in public areas of life. However, despite changes in the degree of patriarchy, the form of patriarchy changed from private to public, where women are subordinated through a segregationist strategy (Walby, 1990). In Cyprus, this segregation was practised differently than in other countries: women were not guided in part-time jobs, but to the public and banking sectors that offer opportunities for full-time employment highly amenable to combining work with family.

In turn, across birth cohorts, women either developed preferences that could be attained through employment in these sectors or took up this option as the best among alternatives despite their preferences. Consequently, changes in women's preferences and educational behaviour did not lead to new biographical patterns, as preference theory suggests. Instead, younger women's trajectories largely resembled those of older women's, indicating that changes in patriarchal structures did not bring about the 'gender transformations' that Walby (1997) identifies in westernised countries. Based on my innovative analysis of the links between preferences, trajectories and institutional transitions, I argued that, against preference theory arguments, women's preferences and decisions are structurally affected, preferences are irreducible to outcomes and are dynamic over historical and biographical time and that social change does not eliminate structural effects; it simply changes them. I therefore proposed my own theoretical framework and methodology to develop context-specific understandings on issues pertaining to women, work and family.

In the distinctive context of this study, aspects of change and continuity create distinct challenges for the future of gender relations and the welfare state. Most participants followed trajectories associated with employment in the public and banking sectors. However, restraining measures taken to cope with the economic crisis gradually make this option less accessible and advantageous, thus further reducing the employment alternatives of highly educated women and undermining the value of human capital. Additionally, financial pressures will probably prevent the state from increasing its participation in care provision, even though the current generation of working women will not be as able to provide the intergenerational support that they typically received from their mothers. It is also possible that these women will form a 'sandwich generation' (Simoni & Trifiletti, 2004) caring for both children and elder parents. Sequentially, employment and childcare structures could become even more constraining for women in Cyprus. Financial need is likely to keep women in the labour market, but given available options, women's lives will probably diverge from preferences. This could create an intense polarisation based on social class: high class women will probably be among the few to act out their preferences, therefore increasing the importance of social capital vis-a-vis human capital. All things considered, if both the employment and childcare options of women are limited in the future, women's involvement in public areas could be undermined by institutional structures. Consequently, this study raises serious concerns about the applicability of modernisation theories across contexts and adds to concerns about the future of southern European welfare states.

The contribution of this thesis to management and business rests on its focus on the under-explored southern European context and on the use of an innovative qualitative methodology to develop typologies of women's work-family preferences and trajectories that are context-specific and dynamic over biographical and historical time. The use of historically specific cohorts to analyse patterns of institutional change and continuity and their effects on individual actors is an approach that can be adopted and/ or adapted by researchers to explore ‘gender transformations’ in new contexts, especially in southern Europe. Such explorations are quite timely now that the financial crisis is particularly affecting southern Europe and brings about changes in national socio-economic structures. This thesis provides an innovative template to understand individual decisions across historical contexts and could therefore serve as a methodological blueprint to understand the relationship between individual agency and social structures in societies under transition. It can also be a useful tool to enhance knowledge in the southern welfare regime, its future and its internal variation through its sensitivity to socio-cultural and historical transitions.

Building on this study, we can further enrich knowledge on the decision making processes of individuals in regards to work and family by using samples that also include men. Such wider samples may generate insights into how structure and agency dynamics influence the preferences and decisions of all individuals, therefore adapting sociological theorisations accordingly. Moreover, men’s perspectives on the constraining and enabling properties of structures may generate insights concerning discriminative ideals and practices that could contribute to our understanding of different forms of public patriarchy across contexts. Quite interesting in extending research on work and family would be the development of cross-country comparative studies that would further elucidate the relative influence of the individual and the social on the options available and the actual decisions of individuals.

In all, the contribution of my thesis rests on its potential to build on its methodological, empirical and theoretical contributions to knowledge in ways that would move relevant debates and theorisations forward. Central to this is the proposed theoretical model that incorporates contextual and temporal effects, arguing that thoroughly contextualising our explorations is fundamental to understanding the dynamics between structure and agency and the ways in which these dynamics change as social structures transform.

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Influence of strategic networking on entrepreneurial orientation and business performance of small and medium sized enterprises

Bojan Moric Milovanovic
University of Zagreb

Abstract
Paper analysis effects of strategic networking and entrepreneurial orientation on business performance with external environment as an indirect variable. Structural model showing influence of strategic networking on entrepreneurial orientation and business performance is defined in which effects of external environment on strategic networking and entrepreneurial orientation are also analyzed. In order to test the hypotheses empirical research is conducted on the sample of 252 small and medium sized enterprises from various business sectors in Croatia. Research results indicate that defined structural model has satisfactory fit level to empirical data and that structural coefficients lead to the acceptance of particular research hypotheses.
Key words: strategic networking, entrepreneurial orientation, performance, SMEs, Croatia

1. Introduction

A number of studies have attempted to show that firms with more strategic networking (SN) and entrepreneurial orientation (EO) perform 'better' than those with lower levels of SN and EO. However, the empirical validity as well as the reliability of the findings remains elusive and inconclusive. This prompt the author to further refine if, and to investigate to what extent, economic performance is a result of the complex relationship between SN, EO and the firm's strategic posture.

One strain in the literature has confirmed that the relationship between SN, EO and economic performance is contingent on the industry in which the company operates, depending itself again on the various internal and external factors (Lumpkin and Dess, 1996; Gulati, Nohria and Zaheer, 2000; Tsai, 2001; Van Gils and Zwart, 2009). This paper attempts to contribute to this existing literature by analyzing the link between SN, EO and economic performance of small and medium firms. Furthermore, it continues in the tradition of this existing strain in the literature that has established that SN and EO can be investigated as a unidimensional but also multidimensional construct. Author also acknowledge and replicate the research that has tested the resulting economic performance with regards to financial but also non-financial aspects of the firms' economic and business performance.

The data for this research were obtained from a sample of 252 SMEs using structural equation modeling (SEM) and multiple linear regression analysis to test the relationships between SN and EO variables and business performance on one side, and SN and EO variables and external environment (EE) on the other side. The analysis indicates that SN and EO positively influence small business performance, while the EE has a positive impact on the firm's SN and EO, as well.

2. Literature review and hypotheses

Changes caused by globalization and development of new technologies directly influenced the transformation of organizational structures by making them thinner, more flexible and decentralized. Answer to these changes had been found in the form of networks as a flexible, dynamic and effective form of organizational structure. For this reason, all economic sectors are characterized by a dramatic increase in network activity and various forms of interorganizational connectivity (Borgatti and Foster, 2003; Anderson, Dodd and Jack, 2010).

Strategic networks can be defined as intentionally formed groups of companies that are geographically close, operate in the same industry and exchange inputs and outputs, in order to achieve certain business activities (Human and Provan, 1997). Since companies have established long-term relationships based on trust, they are able to exchange key competencies and resources to achieve those goals that individually would not be able to. Therefore, the purpose of SN is the formation of a joint activates among the network members where members at the same time contribute inputs to the network and realize benefits by using the other member's outputs (Gulati, Nohria and Zaheer, 2000). Mutual cooperation and exchange represent the basis for value creation and competitive advantage generation in SN (Human and Provan, 1997). Various authors have defined SN as a multidimensional construct through its antecedents: a) commitment, b) trust, c) reputation, d) communication and e) cooperation (Chang and Harwood, 2001; Anderson and Weitz, 1989; Anderson and Narus, 1990).

EO is a concept that is taking place at the organizational level and is closely linked with strategic management and decision making processes (Covin and Slevin, 1991; Birkinshaw, 1997; Naman and Slevin, 1993). EO is defined as the firm's propensity to act autonomously and innovatively, to take risks and to take proactive initiatives regarding potential market opportunities (Lumpkin and Dess, 1996). Lumpkin and Dess (1996) consider that if the company wants to become truly entrepreneurial, it needs to aspire to achieve an efficient combination of the following five dimensions: (a) innovativeness, (b) proactiveness, (c) risk taking, (d) autonomy and (c) competitive aggressiveness.

The literature does not offer a consensus regarding whether dimensions of EO work together or not (Kreiser et al, 2002). Some researchers believe that a company can act in an entrepreneurial way only if it uses high levels of all five dimensions of EO (Miller, 1983). On the other hand, some believe that EO should be viewed as a unidimensional construct based on 'strategic orientation' (Covin and Slevin, 1989) as the sole dimension.

It is possible that certain companies manifest a relatively high level of one dimension or high levels of several dimensions, while other dimensions of EO have relatively low values at the same time (Lyon, Lumpkin and Dess, 2000). This sort of discrepancy may arise from the fact that entrepreneurs can achieve highly positive business results without having to be risk-inclined, innovative or proactive. Entrepreneurs can simply use strategies which focus on imitation rather than innovation. Therefore, in order to better understand a firm's entrepreneurial activity and entrepreneurial behavior in different contexts, many researchers suggest that EO should be seen as a multidimensional construct which, in turn, would allow the examination of the impact of individual dimensions of EO on business performance (Begley and Boyd, 1987; Kreiser et al., 2002, Lumpkin and Dess, 2001).

2.1. Strategic networking and performance

Networking theory states that the firm's competitive advantage resides on collaborative business relationships (Gulati, Nohria and Zaheer, 2000), and that entrepreneurs through networking activities are able to gain the access to those resources that they do not control, thus affecting their business performance (Zhao and Aram, 1995). By forming a business network companies can reduce risk levels, production costs, increase flexibility, efficiency and knowledge capacities, all of which ultimately lead to higher performance levels (Oliver, 1990; Lin and Zhang, 2005). Through business networks companies are able to better predict, prevent and absorb uncertainties that affect their operations (Oliver, 1990) and are able to jointly access previously inaccessible markets (Saleh and Ndubisi, 2006).

Successful companies more often use expert advice (Duchesneau and Gartner, 1990) and increasingly rely on information provided by their accountants in comparison to less successful companies (Potts, 1977). Moreover, the lack of contacts with business professionals represents an obstacle to the further business expansion (Larsson et al, 2003). In their study, Donckels and Lambrecht (1995) found that the development of networks has a positive effect on business growth, Saleh and Ndubisi (2006) determined that it leads to significant revenue growth and customer base expenditure, while Lerner, Brush and Hisrich (1997) affirmed that network participation significantly contributes to the increased profitability.

We thus propose to test the following hypotheses and their corollaries:

H1: SN has a positive effect on small business performance.

H1a: Commitment has a positive effect on small business performance.

H1b: Trust has a positive effect on small business performance.

H1c: Reputation has a positive effect on small business performance.

H1d: Communication has a positive effect on small business performance.

H1e: Cooperation has a positive effect on small business performance.

2.2. Strategic networking and entrepreneurial orientation

Companies in strategic network share inputs and outputs in order to achieve certain business activities (Human and Provan, 1997). Since companies are close to each other, they are able by exchanging key competencies and resources to achieve certain goals that individually would not have been able to. Evolvent of entrepreneurial orientation among network members arises as a consequence of their open communication, resource exchange, long-term cooperation and higher proclivity towards risk (Kusumawardhani et al, 2009; Awang et al, 2011). Moreover, higher levels of trust, communication and cooperation among companies lead to a greater exchange of sensitive information and resources that each company by itself do not possess, whereby companies become more knowledge abundant, which in turn leads to the creation of innovations and to the proactive approach towards development of new products, services or entirely new markets (Human and Provan, 1997; Zaheer, McEvily and Perrone, 1998; Street and Cameron, 2007).

We thus propose to test the following hypotheses:

H2: SN has a positive effect on EO.

H2a: Commitment has a positive effect on EO.

H2b: Trust has a positive effect on EO.

H2c: Reputation has a positive effect on EO.

H2d: Communication has a positive effect on EO.

H2e: Cooperation has a positive effect on EO.

2.3. Entrepreneurial orientation and performance

Several papers have attempted to explain a firm's business performance through EO. Dess et al. (1997) have explored the nature of entrepreneurial strategy-making process and its relationship to strategy, environment and performance. Covin and Slevin (1989, 1991) had developed a model which links a firm's EO to its performance. These authors found that EO has a positive impact on business performance. Bromley and Miller (1990) found that EO has an impact on the overall business performance indicators such as return on assets, equity and sales. Zahra (1991) found a positive relationship between EO and a company's profitability and growth. Wiklund (1999) confirmed the existence of a positive relationship between EO and performance. Based on this critical mass of the salient literature we propose that there is a general positive connection between EO and various indicators of business performance (Barringer and Bluedorn, 1999; Covin and Slevin, 1989; Miller, 1983; Wiklund, 1999; Wiklund and Shepherd, 2003, 2005; Zahra, 1991; Zahra and Covin, 1995).

Consequently, we propose to further test the following hypotheses:

H3: EO has a positive effect on small business performance.

H3a: Innovativeness has a positive effect on small business performance.

H3b: Proactiveness has a positive effect on small business performance.

H3c: Risk-taking has a positive effect on small business performance.

H3d: Autonomy has a positive effect on small business performance.

H3e: Competitive aggressiveness has a positive effect on small business performance.

2.4. External environment and strategic networking

External environment can be defined in numerous ways, but most define it using the following aspects: turbulence (Khandwalla, 1977; Naman and Slevin, 1993), hostility and dynamism (Yeoh, 1994; Miller, 1983). Environmental turbulence as a concept combines unpredictability, expansion and fluctuations in the environment (Khandwalla, 1977). Environmental hostility is sometimes referred to as a high-velocity environment which is characterized by the intense competition via price, product and technology, additionally as a lack of resources (eg. lack of raw materials, human resources, etc.), serious regulatory restrictions, the relative lack of exploitable opportunities, and negative demographic trends (Miller and Friesen, 1982; Hall, 1980). Dynamism represents the perceived instability and the continuity of changes within the firm's environment (Dess and Beard, 1984; Boyd, Dess and Rasheed, 1993).

Intensity and complexity of the current environment changes are putting pressure on companies to look for new possibilities of conducting a business with the purpose for creating new added value (Stopford, 2001; Ward and Lewandowska, 2005; Asch and Salaman, 2002). Therefore, turbulent, dynamic and hostile environment has a significant impact on networking activities of small and medium sized enterprises since in this kind of an environment firms are compelled to share information, resources, knowledge, and to constantly seek new sales and distribution channels, suppliers and all other stakeholders that have an impact on their business performance.

To that end, we propose to test the following hypotheses:

H4: External environment has a positive effect on SN.

H4a: Turbulence has a positive effect on SN.

H4b: Hostility has a positive effect on SN.

H4c: Dynamism has a positive effect on SN.

2.5. External environment and entrepreneurial orientation

Impact of external environment on EO has been observed by many authors as an important determinant of EO at both individual and organizational levels (Desarbo et al., 2005; Zahra and Covin, 1993; Dess et al., 1997), while it has a moderating effect on the various business strategies (Greenley and Foxall, 1999). Therefore, in today's uncertain and turbulent environment companies are forced to behave in an entrepreneurial way in order to try to survive in the market. Additionally, rapid changes in technology and shorter product cycles are forcing companies to be innovative in order to develop new ideas, products and processes, and to willingly take calculated risks in order to cope with market changes. Moreover, increasing competition, both domestic and foreign emphasizes the need for a more proactive market approach.

We examine the above via the following hypotheses:

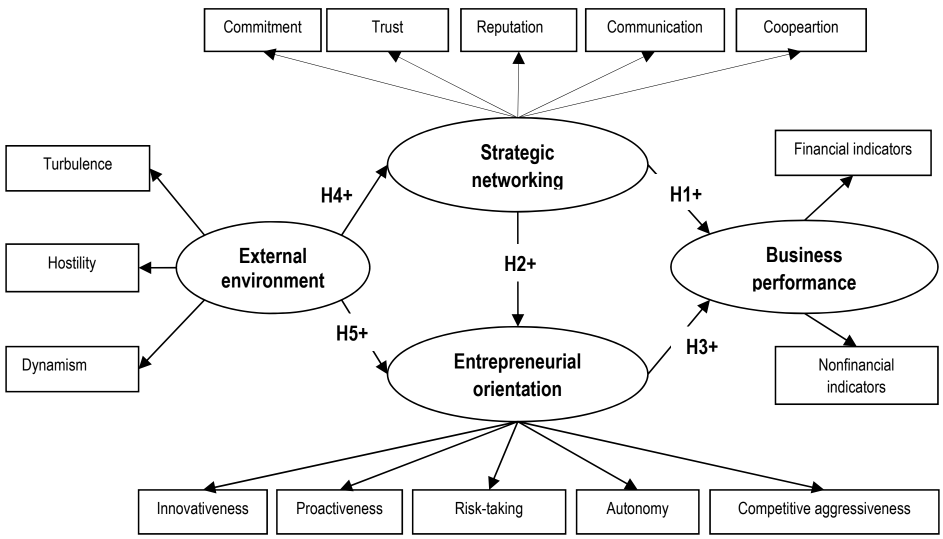
H4: External environment has a positive effect on EO.

H4a: Turbulence has a positive effect on EO.

H4b: Hostility has a positive effect on EO.

H4c: Dynamism has a positive effect on EO.

Figure 1: Conceptual model and hypotheses



3. Research method

3.1. Sample

The sampling frame was taken from the database of the Croatian Chamber of Economy, which includes all incorporated Croatian companies. A random sample of independent firms from the service sector was taken. One half of the companies in the sample had between 1 and 49 employees and the other half had between 50 and 249 employees; this corresponds to the European Union's definition of small and medium sized enterprises respectively. A total of 2,223 small and medium sized business owners/managers from the sampling frame were contacted in June and July 2011 out of which 252 responded to a mail questionnaire (resulting in a response rate of 11,4%). Regarding the business size of the respondents, 25% (n=63) were micro firms, 41% (n=103) were small firms and 34% (n=86) were medium sized firms.

3.2. Variables and measures

SN was conceptualized using five variables: commitment, trust, reputation, communication and cooperation. Each of these variables was measured with three questions using a seven point Likert scale. Commitment was measured using Allen and Meyer (1990) scale, trust using Garbarino and Johnson (1999) scale, reputation using Hansen, Samuelsen and Silseth (2008) scale, communication using Sivadas and Dwyer (2000) scale, while cooperation was measured by Eriksson and Pesamaa (2007) scale.

EO was operationalized using five variables: innovativeness, proactiveness, risk taking, autonomy and competitive aggressiveness. Each of these variables was measured with three questions using a seven point Likert scale. Innovativeness, proactiveness and risk taking were measured using Covin and Slevin's (1989) scale, while autonomy was measured by Lumpkin, Cogliser and Schneider's (2009) scale and competitive aggressiveness by the one provided by Aktan and Bulut (2008).

EE was operationalized using three variables (turbulence, hostility and dynamism) by Naman and Slevin (1993). Each of these variables was measured with three questions using a seven point Likert scale.

Business performance was operationalized accordingly by Gupta and Govindarajan (1984) where the respondents were asked to rate the extent to which stated financial and non-financial indicators are important for their business, and subsequently, to assess the extent of satisfaction with the achieved performance of these indicators. For this purpose three financial and three non-financial indicators were used; each of the indicators was measured with three questions using a seven point Likert scale.

3.3. Analysis

Structural equation modeling was used to test the relationships between main (latent) constructs in the proposed model, while a multiple linear regression analysis was used to test the relationships between business performance and second-order variables that operationalize SN, EO and EE.

4. Results

To test the main hypotheses as displayed in figure 1, the data was analyzed using structural equation modeling. The overall model demonstrated acceptable fit since all of the goodness of fit measures met recommended cutoff values ($\chi 2$= 177.534, $\chi 2$/ss= 2.165, GFI= 0.916, AGFI= 0.877, RMSEA= 0.068, CFI= 0.925, IFI= 0.927 and TLI= 0.905). Moreover, a very large proportion of the variance of the variable business performance was explained by the model (R^2 = 0.30). Individual items show good reliability (Cronbach alfa coefficients of all model variables are well above 0.7) and exhibit significant and substantial loadings on their intended constructs indicating good convergent validity (table 1) and good discriminatory validity (table 2). Structural equation modeling enabled an examination of all relationships simultaneously instead of separately, as would have been true with path analysis.

Table 1: AVE values of model variables

Variable	AVE (> 0.5)
External environment	0,65
Entrepreneurial orientation	0,66
Strategic networking	0,65
Business performance	0,83

Table 2: AVE and r^2 comparison of model variables (AVE > r^2)

Variable	EE	EO	SN
EO	0,65>0,0408 0,66>0,0408		
SN	0,65>0,0069 0,65>0,0069	0,66>0,2228 0,65>0,2228	
Performance	0,65>0,0001 0,83>0,0001	0,66>0,1354 0,83>0,1354	0,65>0,2088 0,83>0,2088

Unstandardized coefficients, standardized coefficients, standard errors, critical ratios and p-values for the relationships between structure model variables are displayed in Table 3. As it is clearly seen from the table 4, SN has a significantly positive influence on business performance ($r = .18$, $P < .05$) and EO ($r = .60$, $P < .01$), EO positively influences business performance ($r = .41$, $P < .01$) while EE has a significantly positive influence on SN ($r = .13$, $P < .10$) and EO ($r = .19$, $P < .05$), as well. Therefore, these findings support Hypothesis 1, 2, 3, 4 and 5.

Table 3: Results of CFA analysis for the structure model

Path description			Unstandard. coefficient	S.E.	C.R.	P	Standard. coefficient
Business performance	**<---**	***Strategic networking***	***1.797***	***.819***	***2.194***	***.028***	***.183***
Entrepren. orientation	**<---**	***Strategic networking***	***.792***	***.142***	***5.562***	***	***.603***
Business performance	**<---**	***Entrepren. orientation***	***3.095***	***.842***	***3.676***	***	***.414***
Strategic networking	**<---**	***External environment***	***.098***	***.059***	***1.647***	***.100***	***.139***
Entrepren. orientation	**<---**	***External environment***	***.180***	***.071***	***2.556***	***.011***	***.195***
Dynamism	<---	External environment	1.000				.648
Hostility	<---	External environment	.882	.138	6.380	***	.621
Turbulence	<---	External environment	1.106	.174	6.371	***	.680
Trust	<---	Strategic networking	1.000				.562
Commitment	<---	Strategic networking	1.411	.221	6.397	***	.512
Reputation	<---	Strategic networking	1.064	.117	9.069	***	.669
Communication	<---	Strategic networking	1.679	.206	8.161	***	.771
Cooperation	<---	Strategic networking	1.940	.240	8.083	***	.780
Competitive aggress.	<---	Entrepren. orientation	1.000				.550
Autonomy	<---	Entrepren. orientation	.843	.138	6.106	***	.484
Risk-taking	<---	Entrepren. orientation	1.095	.126	8.685	***	.587
Proactiveness	<---	Entrepren. orientation	1.546	.184	8.408	***	.830
Innovativeness	<---	Entrepren. orientation	1.509	.184	8.213	***	.777
Financial indicators	<---	Business performance	1.000				.591
Nonfinancial indicat.	<---	Business performance	1.736	.279	6.228	***	1.080

Notes: ***P < .001.

The beta coefficients, standard errors, R squares and adjusted R squares of the multiple regression analysis are displayed in Table 4. The absence of multicollinearity was ensured by centering the means of the interaction variables and by applying multicollinearity diagnosis. Variance inflation factors were well below critical values. From the second-order variables that operationalize SN only commitment (b = .10, P < .10), reputation (b = .28, P < .01) and cooperation (b = .16, P < .05) have significantly positive effect on business performance. When looking the effect on EO it can be concluded that reputation (b = .24, P < .01), communication (b = .21, P < .01) and cooperation (b = .20, P < .01) have a significantly positive effect. Therefore, these findings support Hypothesis 1c, 1d, 2c, 2d and 2e.

Table 4: Results of multiple linear regression analysis (n=252)

	H1 Performance		**H2** EO		**H3** Performance		**H4** SN		**H5** EO	
	β	S.E.	β	S.E.	β	S.E.	β	S.E.	β	S.E.
Commitment	.10*	.34	.26	.04						
Trust	.10	.60	-.54	.07						
Reputation	.28***	.68	.24***	.08						
Communication	-.02	.52	.21***	.06						
Cooperation	.16**	.44	.20***	.05						
Innovativeness					.29***	.45				
Proactiveness					.14*	.48				
Risk-taking					-.17**	.44				
Autonomy					.06	.41				
Comp. agres.					.16**	.44				
Turbulence							.00	.05	.04	.05
Hostility							.18***	.05	.17**	.06
Dynamism							-.06	.05	.07	.05
R square (R^2)	.49***		.51***		.44***		.17***		.21***	
Adjusted R square	.24***		.26***		.19***		.03***		.04***	

Notes: *P < .10; **P < .05; ***P < .01.

From the second-order variables that operationalize EO innovativeness ($b = .29$, $P < .01$), proactiveness ($b = .14$, $P < .10$) and competitive aggressiveness ($b = .16$, $P < .05$) have significantly positive effect on business performance, while risk-taking has a significant influence on business performance ($b = -.17$, $P < .05$) but a negative one. Therefore, these findings support Hypothesis 3a, 3b and 3e. Only hostility as a second-order variable, which operationalizes the external environment, has a significant positive effect on SN ($b = .18$, $P < .01$) and EO ($b = .17$, $P < .05$); this, in turn supports Hypothesis 4b and 5b.

5. Discussion

5.1. Implications for research and management

Researching the concept of SN and its influence on firm EO and performance in the context of a small transitional country such as Croatia provides a valuable contribution to the existing scientific literature since the majority of previous research was conducted in large and developed countries. Moreover, much of the previous research looked at SN and EO in the context of large companies, while only a small number of studies have focused on observing these concepts among small and medium-sized companies. A literature contribution can be seen in the analysis of the relationship between SN and small business performance in the small transitional economy such as Croatia, adding the effects of EO and EE to the relationship.

The main conclusion to be drawn from our study resides in the recognition that SN and EO positively affects business performance of SMEs in the present context of economically transforming Croatia. This conclusion suggests that small business owners and their management should consider the antecedents of SN and EO in defining their business strategies. In other words, companies will realize numerous advantages if sophisticated long-term network relationships are established with business partners and if their business activities are characterized by a greater propensity to innovate, increased proactive approaches to market opportunities, more calculated risks, more assertive autonomous behavior and an aggressive stance towards their competitors.

5.2. Limitations

The size of the sample represents a certain limitation of the study. Although the sample size and the rate of return seem technically satisfactory and in line with the international publication standards (Klein, 2005; Malhotra, 2010), future research should be conducted on a larger sample in order to contribute to a more generalizable understanding of the research issues. The study is based on subjective perceptions of firm representatives, comprised of the owners, directors or higher-level management who self-selected in their responses. Directors and managers are personally biased whilst evaluating internal and external organizational environments, while business owners often evaluate their businesses in the context of the emotional connections they have with regards to their family needs, various forms of social relationships and their personal needs and desires.

This research examined the impact of SN on EO and the firm's business performance observed at one point in time; future research, in turn, may need to be conducted via a longitudinal study. This could provide a clearer insight into the relationship of SN and EO antecedents and various aspects of business performance. Since the research is based solely on subjective measures of observed concepts, i.e. on the individual perceptions of individual firms' representatives, it remains paramount, for purposes of generalizability and comparability to devise more *objective* metrics.

5.3. Conclusion

Small and medium sized firms represent the most agile, dynamic and innovative sector of any economy. Any investigation of their performance represents an academically worthy effort. Investigating those firms' SN-EO-business performance relationships in the context of a transitional country such as Croatia in the present study and by observing the unidimensional and multidimensional aspects of the constructs in question, the conducted research may provide an interesting insight into this dynamic process and a preliminary framework for further investigation and generalization for regionalized economies.

Since the said SN-EO-business performance relationship differs largely depending on the industry and various internal and external factors, adding the effect of the external environment to the model, observed as uni- and as a multi-dimensional construct, makes this research a worthy starting point for future insights into this topic.

When looking at SN and EO as multidimensional constructs, only commitment, reputation, cooperation, innovativeness, proactiveness and competitive aggressiveness have a positive influence on business performance. The external environment as a unidimensional construct positively influences SN and EO, while only hostility has a positive influence as a dimension of the external environment. Other dimensions do not show significant influence on SN or EO. Regarding the effect of SN on EO it can be concluded that as a unidimensional construct has a positive influence, while as a multidimensional construct only reputation, communication and cooperation positively influence EO.

The findings of this paper are also consistent with previous research in that we suggest that SN (i.e., commitment, trust, reputation, communication and cooperation) and EO (i.e., innovativeness, proactiveness, risk-taking, autonomy and competitive aggressiveness) as unidimensional constructs positively influence business performance of Croatian SMEs. This particular conclusion of the paper may yield the opportunity for a new investigative angle for academics, researchers and management executives among private and public professional bodies in charge of governance of service sector SME policy, for example, especially in the context of the described transitional economies.

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The impact of failure experience in product development on exploration, knowledge usage, and financial performance of the firm

Peiran Su
University College Dublin

Abstract

This thesis addressed three questions regarding learning from failure: 1) How does firms' failure experience influence their search activities? 2) How does firms' failure experience affect their performance? and 3) How does firms' exploration and exploitation influence the impact of failure on performance? Based on the theoretical lens of learning from failure, absorptive capacity, and exploration and exploitation, the series of longitudinal quantitative studies in this thesis revealed that firms' failure experience negatively affects exploratory search, positively influences R&D performance, and exhibits a mixed blessing on firms' financial performance. Boundary conditions of the relationships were discussed.

Failure experience in organisations is associated with risk, uncertainty, and financial losses (Cope, 2011; Cyert & March, 1992; Kim, Kim, & Miner, 2009; Sitkin, 1992) which signal changes that managers may make in their subsequent exploration and exploitation (March, 1991). Risk aversion and performance feedback perspectives suggest contrasting implications for exploration and exploitation after failure experience (Greve, 1998, 2003; Lewin, Long, & Carroll, 1999; Shepherd, Covin, & Kuratko, 2009). On the one hand, research reveals that managers follow the logic of reducing uncertainty and risk (Shepherd, 2003; Shepherd et al., 2009), which drives exploitation because the benefits from exploitation are more certain (Lewin et al., 1999). On the other hand, performance feedback theory suggests that failure triggers exploratory search, and organisations that performed poorly are thus more likely to reorient than organisations that experienced success (Greve, 1998, 2003). Although theoretical work has proposed that the trade-off between risk-taking and risk aversion tends to be made in favour of more exploitation (Hannan & Freeman, 1984, 1989; Levinthal & March, 1993), little research has been conducted to examine this tendency empirically. Answering the first research question in this thesis regarding how firms' failure experience influences their search activities, I examined empirically the contradictory arguments about firms' reactions to their failure experience in the R&D intensive pharmaceutical industry. The findings revealed a negative relationship between failure experience and exploration in product development in R&D intensive firms.

Organisations learn from experience (Argote & Miron-Spektor, 2011; Cyert & March, 1992; Huber, 1991; Levitt & March, 1988) and organisational performance improves with experience (Argote, 1999; Cyert & March, 1992; Huber, 1991; Levitt & March, 1988; Miner, Kim, Holzinger, & Haunschild, 1999; Pisano, Bohmer, & Edmondson, 2001; Rerup & Feldman, 2011; Thompson, 2001). Failure experience may be too expensive to waste because organisations learn mainly by encountering problems (Cyert & March, 1992; Sitkin, 1992) and failure can thus lead to positive outcomes such as learning (Nonaka & Takeuchi, 1995). The more negative consequences an organisation experiences, the more it is induced to learn (Homsma, Van Dyck, De Gilder, Koopman, & Elfring, 2009). Following the traditional learning curve perspective (Argote & Epple, 1990; Thornhill & Amit, 2003), I hypothesized a positive relationship between failure experience and organisational learning outcomes, which was denoted by knowledge usage. Knowledge usage is a dimension of organisational learning outcomes is rooted in absorptive capacity theory (Cohen & Levinthal, 1990; Zahra & George, 2002) and refers to a firm's capability in converting research discoveries into product development, given a certain amount of R&D input. Answering part of the second research question in this thesis regarding how firms' failure experience affects their knowledge usage and organisational performance, the results supported a positive relationship between failure experience and knowledge usage.

A positive relationship between failure experience and knowledge usage may not imply a positive relationship between failure experience and financial performance because some scholars argue that rent generation may not be directly associated with rent appropriation (Durand, Bruyaka, & Mangematin, 2008). Empirical research demonstrates that firms are capable of translating their learning from experience into financial gains. However, the assumption that firms are capable of converting their learning outcomes into financial improvement may be problematic in a context of high frequency of failure. A reason may be that failure is a special type of experience that undermines a firm's financial performance, signals problems in the firm's history, and causes negative emotional responses among employees. Challenging this assumption that firms' learning from failure experience is linearly associated with their financial improvement, I hypothesized an inverted U-shaped relationship between failure experience and firm financial performance. Answering part of the second research question in this thesis regarding how firms' failure experience affects their knowledge usage and organisational performance, my findings showed an inverted U-shaped relationship between failure experience and financial performance. Firms' learning from failure resulting in financial gains may be an approximation in the context of low frequency of failure. Firm financial performance suffers along with increasing failure.

I further examined related boundary conditions on the impact of failure experience on firms' knowledge usage and financial performance. These boundary conditions are contexts that affect learning and moderate the relationship between failure experience and organisational performance (Argote & Miron-Spektor, 2011). Since search triggered by failure experience is associated with exploring new knowledge and exploiting existing knowledge (March, 1991), exploration and exploitation were used as the theoretical lens to interpret the boundary conditions. Exploration employs varied and dispersed knowledge in new ways and exploitation leverages existing knowledge in well-understood ways (Levinthal & March, 1993; March, 1991). Returns to exploration are less certain, further in time, and further in space than to exploitation (Levinthal & March, 1993). Answering the third research question in this thesis regarding how firms' exploration in product development influences the impact of failure experience on knowledge usage and organisational performance, I completed the development of the model by examining the conditional impact of exploration on knowledge usage and financial performance. The results demonstrated that exploration positively moderates the relationship between failure experience and knowledge usage, and negatively moderates the relationship between failure experience and financial performance. Table 1 summarizes the hypotheses and the results.

Table 1 Hypotheses and Results

Hypotheses	Statements	Results
1a	*There is a positive relationship between failure experience and the tendency for exploration in product development of R&D intensive firms.*	Not supported
1b	*There is a negative relationship between failure experience and the tendency for exploration in product development of R&D intensive firms.*	Supported
2a	*There is a positive relationship between failure experience and knowledge usage.*	Supported
2b	*Exploration positively moderates the positive relationship between failure experience and knowledge usage. Specifically, when exploration is higher, the increase of knowledge usage associated with increasing failure experience is faster than when exploration is lower.*	Supported
3a	*There is an inverted U-shaped relationship between failure experience and financial performance.*	Supported

3b	*Exploration negatively moderates the inverted U-shaped relationship between failure experience and financial performance. Specifically, when exploration is higher, change in financial performance associated with increasing failure is slower than when exploration is lower.*	Supported

The global pharmaceutical industry provides an ideal empirical setting for this research because of its R&D intensity, high frequency failure events, and consistent regulations. 165 pharmaceutical firms in Europe and North America mainly were selected for the studied period from 1990 to 2008. The sample firms were related to 17,349 records of drug development in Pharmaprojects, 709,407 records of patents in Derwent Innovations Index, 5,978 records of alliances in LexisNexis, and financial data in Research Insight (including Compustat and Global Vantage).

Contributions

The findings of this thesis make a number of contributions to theory and research. First, this research contributes to organisational learning theory by examining the effects of a dimension of experience on learning outcomes. A special issue of Organization Science focuses on learning from rare events that have major consequences (Lampel, Shamsie, & Shapira, 2009). Researchers also show interests in learning from events that occur more frequently than rare events, such as learning from alliances (Lavie & Miller, 2008; Pangarkar, 2009; Zollo & Reuer, 2010) and learning from contracting experience (Vanneste & Puranam, 2010). Little empirical research has examined learning from events that occur highly frequently over time, such as failed product development. Understanding learning from various dimensions of experience contributes to organisational learning theory because experience with different properties can have different effects on organisational learning outcomes (Argote & Miron-Spektor, 2011).

Second, I advance the organisational learning literature by clarifying, articulating, and elaborating the effects of failure on firms' knowledge usage and financial performance longitudinally. Although previous studies acknowledge the importance of failure experience and the positive outcomes of learning from failure (Baum & Dahlin, 2007; Homsma et al., 2009; Madsen & Desai, 2010), it has remained equivocal an understanding of the learning effects that underlie the impact of failure experience on organisational knowledge usage and financial performance. I demonstrate longitudinally different routines of the impact of failure experience on organisational outcomes. Organisations thus face a dilemma of favouring between knowledge usage and financial performance. Failure experience can be considered as invaluable to the organisational learning and R&D processes. However, what improves organisational learning may not automatically improve organisational financial performance. Organisational financial performance may not change in a linear manner consequently. This leads to the next contribution.

Third, this thesis contributes to the learning from failure literature by revealing a mixed blessing that failure gives to organisational financial performance. Learning from failure is essential to organisational adaptation. A heated debate in the literature is to what extent failure-induced learning triggers positive performance outcomes (Desai, 2010; Rerup & Feldman, 2011). This study contributes to this debate and reveals the double-edged impacts of failure on organisational financial performance. The influence of failure experience on financial performance is positive before a certain threshold. After this threshold, the influence of failure experience appears to become negative. Experiencing failure can be considered a motivation for organisational financial performance if failure experience is well under control. This contribution has implications on which future insights can be critically leveraged.

Fourth, in an effort to further enrich understanding of the impact of failure experience on organisational knowledge usage and financial performance, I examine the contingent role of exploration and exploitation in shaping the relationships between failure experience and knowledge usage and between failure experience and organisational financial performance. Some scholars focus on learning from different types of failure experience at various levels (Bonesso, Comacchio, & Pizzi, 2011; Desai, 2011). Some study different effects between learning from failure and learning from success (Kim et al., 2009; Madsen & Desai, 2010). Few have examined boundary conditions of the learning from failure effects. This study provides new insights about the boundary conditions in the internal context of organisations. This finding also contributes to the exploration and exploitation literature by theorizing the moderating impact of exploration and exploitation on organisational outcomes (Anand, Mesquita, & Vassolo, 2009).

Theoretical Implications

Low Frequency versus High Frequency of Failure and Its Consequences

A special issue of Organization Science focused on learning from rare failure events (Lampel et al., 2009). These rare events were interpreted as interruptions that triggered learning and redirected organisational identity (Christianson, Farkas, Sutcliffe, & Weick, 2009). The studies in the special issue of Organization Science generally discussed how organisations learn from failure events that occurred at low frequency and exhibited significant consequences.

Less is known regarding organisational learning from failure events that occurred more frequently. This is an important issue as firms in these situations have incentives to build mechanisms for learning from failure and to minimize the negative impact of failure. Consequences of learning from frequent failure events may be different from those of learning from rare events. The research reported in this thesis forwards this stream of literature by developing theory to predict consequences of learning from frequent failure events. By logic, consequences of learning from frequent failure events may be different from consequences of learning from rare failure events because organisations may generally not be able to make substantial changes frequently. In addition, paying more attention to highly frequent failure events or small failures may prevent failures with severe consequences (Cannon & Edmondson, 2005; Sitkin, 1992). Therefore, understanding learning from various types of failure experience contributes to organisational learning theory because experience with different properties may have different effects on organisational learning outcomes (Argote & Miron-Spektor, 2011; March, 2010).

The research reported in this thesis yields a portrait of learning from highly frequent failure events. The results may imply that effects of learning from frequent failure events may be different from effects of learning from rare failure events. Firms that experienced frequent failure events tended to be risk averse and focus on their existing routines. This finding and some of the findings in the special issue on learning from rare failure events of Organization Science discussed earlier are complementary. The results may also imply that effects of learning from frequent failure events on firm performance may be curve linear, which are different from the existing assumptions in the field. The latter tends to support a linear impact of failure on firm performance.

Learning From Failure and Organisational Outcomes

Prior research shows that firms learn by encountering problems (Cyert & March, 1992; Levitt & March, 1988). Scholars have developed various perspectives on whether and how firms learn from their failure experience (Anchordoguy, 2000; Barnett & Freeman, 2001; Barnett & Pontikes, 2008; Brown & Jones, 1998; Kim & Miner, 2007; Nunez-Nickel, Gutierrez, & Carmona, 2006; Renn, Allen, Fedor, & Davis, 2005; van Witteloostuijn, 1998; Weber & Camerer, 2003; Wezel & van Witteloostuijn, 2006). These studies generally reveal a positive relationship between failure experience and organisational learning outcomes.

Advancing this stream of literature, I introduced an indicator of learning outcomes, knowledge usage, examined it in the context of R&D intensive firms, and revealed empirically a positive relationship between organisational learning from failure experience and knowledge usage. I also examined the relationship between failure experience and firm financial performance. As stated earlier, scholars generally examined learning outcomes, such as generation of new ideas and insights (Homsma et al., 2009), reduced accident cost (Baum & Dahlin, 2007), whether an attempt fails (Madsen & Desai, 2010), and whether an accident occurs (Desai, 2010). Empirical research on how failure experience results in financial performance is limited. Addressing this issue in an empirical context, I found that failure experience is positively related to firm financial performance at a decreasing rate.

Performance Increase versus Performance Decrease after Failure

Both qualitative and quantitative research argues that performance improvement can be an outcome of organisational learning from failure (Baum & Dahlin, 2007; Cope, 2011). Scholars that examined various aspects of organisational learning outcomes, such as generation of new ideas and insights (Homsma et al., 2009) and reduced accident cost (Baum & Dahlin, 2007), generally revealed a positive relationship between failure experience and organisational learning outcomes. However, translating learning from failure into financial improvement may not occur linearly or smoothly. There is a heated debate in the literature as to what extent failure-induced learning triggers positive performance outcomes (Desai, 2010; Rerup & Feldman, 2011).

Advancing this debate, the research reported in this thesis differs from prior research on the organisational performance implications of failure experience in a way that the current research has revealed a mixed blessing that failure gives to organisational financial performance. Organisational learning from failure may be related to positive financial performance before certain thresholds, after which the influence of failure experience may appear to become negative on financial performance. The inverted U-shaped relationship between failure experience and organisational financial performance may imply that the process of value creation from failure experience is complex and not linear. Learning, especially learning from failure, may be a necessary but not essential antecedent of organisational performance improvement. Experiencing failure may be considered a motivation for organisational financial performance if failure experience is well under control. However, it is unclear how firms minimize the negative impact of failure on financial performance when failure experience exceeds certain thresholds.

Learning From Failure and Boundary Conditions

An emerging stream of research highlights the importance of understanding the boundary conditions that govern learning. For instance, researchers have examined if failure experience prompts firms to make technological investments, and if these investments help boost firm performance (Desai, 2010). Desai (2010) found that technological investments mediate the relationship between failure-induced learning and organisational performance. Desai's (2010) findings demonstrated that additional investments may play a supplementary role in organisational learning from direct failure experience.

Enriching this emerging stream of literature in a different way, I portrayed a different boundary condition, the moderating role of exploration in organisational learning from failure experience. I showed that exploration in product development has different effects on knowledge usage and financial performance. Exploration may strengthen the impact of failure experience on knowledge usage and weaken the impact of failure experience on financial performance. This contingent role of exploration may be an important issue because the choice between exploration and exploitation may be driven particularly by the firm's failure experience, and in turn influences the effects of failure experience on knowledge usage and financial performance. For instance, as shown in the research findings of this thesis, firms make the choice of exploitation after experiencing failure, which in turn positively moderates the inverted U-shaped relationship between failure experience and financial performance. Firms' financial performance may thus increase faster and decrease more slowly in an exploitative context. The maximum performance may also be reached in an exploitative context.

Practical Implications

Knowledge Usage versus Financial Performance

The research reported in this thesis revealed that learning from failure experience may trigger knowledge usage and improve financial performance at a decreasing rate. Further examination showed that knowledge usage does not have a significant relationship with financial performance. These results may suggest that managers might face a balance between rent generation (i.e. knowledge usage) and rent appropriation (i.e. financial performance). Managers that tend to motivate organisational learning from failure on the one hand and to pursue superior financial performance on the other hand may need to make trade-offs between the two. High levels of knowledge usage, which may imply more effective learning from failure, may not be inherently more profitable than low levels of knowledge usage. Although risk and failure should be supported (Baden-Fuller, 2005), high levels of failure do more harm than good to firms' financial performance. Managers should control the levels of failure because financial performance may decrease after a certain threshold of failure.

Encouraging Learning from Failure versus Minimizing Failure

An important implication of the research reported in this thesis may be for managers that endeavour to manage failure experience in their product development processes. Managers should not ignore failure but should treat it as invaluable information for learning. Increases in knowledge usage and financial performance may suggest the need for managers to encourage learning from failure. Learning from failure may make firms more capable of utilizing knowledge and more profitable if failure is well under control. However, failure is associated with individual grief and organisational financial losses. Managers are thus suggested to minimize the negative impact of failure experience on aspects of firms. Firms may need to support employees to engage in learning from failure on the one hand (Carmeli & Gittell, 2009) and may need to reduce failure or its negative impact on the other hand. Firms that perform both needs well may be extraordinarily rare because of (at least partially) their managers' limited understanding of failure experience (Edmondson, 2011).

This point is consistent with researchers' suggestion of an organisational environment that tolerates failure and coexists with high standards for financial performance. Failure and fault are virtually inseparable in most firms. Only leaders may create and reinforce an environment that counteracts the blame game and makes employees feel responsible for learning from failure. This requires consistently reporting failures, systematically analysing them; and proactively searching for opportunities to experiment (Edmondson, 2011).

Exploring versus Exploiting after Failure

Acknowledging the inherent tension between exploration and exploitation in organisational learning, I provided an answer to researchers' call to specify antecedents that trigger exploration and exploitation (Lavie, Stettner, & Tushman, 2010). I enriched the empirical literature by proposing and examining the role of failure experience as an important antecedent of exploration and exploitation in product development. Firms' failure experience may be associated with exploitation within specific domains of product development, resulting in the imbalance between exploration and exploitation. This specialization within domains may increase a firm's capabilities in knowledge utilization on the one hand and may cause the firm locked out of the market on the other hand (Levinthal & March, 1993; March, 1991). The tension between exploration and exploitation may be intensified when it is associated with firm performance. Researchers suggest that performance improvement is associated with balancing exploration and exploitation across domains (Lavie, Kang, & Rosenkopf, 2011). Since failure drives exploitation within specific domains at the expense of exploration, managers may pursue exploration in other domains to maintain balance in the long term. However, experiencing failure in some domains and engaging in exploration in other domains may imply more challenges that firms may encounter.

Needs to balance exploration and exploitation may not only exist in the relationships between exploration and exploitation and their antecedents and consequences but also exist while using exploration and exploitation as moderators to shape organisational learning outcomes. This seems a more difficult task of coping failure for managers in R&D intensive firms. The results reported in this thesis show that the contingent role that exploration plays in the relationship between failure experience and knowledge usage contrasts with that in the relationship between failure experience and financial performance. Balancing exploration and exploitation is not only important for firms' strategic renewal but also essential for organisational learning from failure experience. Firms that make changes in their search orientation following failure may not simultaneously improve knowledge usage and financial performance.

Management of product development in R&D intensive firms may focus on various dimensions (i.e., various domains) of knowledge involved in product development. For instance, managers may decide to focus on a few domains in their firms to benefit from specialization within these domains while exploring new knowledge within other domains in product development or at a different level of analysis. In association with the domain separation approach of exploration and exploitation, managers may decide to achieve balance at a level (e.g., the intra-organisational, organisational, or inter-organisational level) that suits the development stages of their firms. For example, since specialization increases efficiency and effectiveness of product development, it may be essential for firms to form alliances within or across their industries to provide fully functional products.

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Environmental innovations in the Hungarian manufacturing sector

Anna Széchy
Corvinus University of Budapest

Abstract

My thesis examines the environmental innovation activity of Hungarian manufacturing companies and the determinants shaping this activity. Among the factors examined are perceptions about the companies' environmental effects, pressure from various stakeholders (regulatory authorities, owners, customers, etc.), and the adequateness of firm resources and capabilities (human, financial, etc. as well as firm size). The influence of these factors on the presence of environmental innovations is captured in a binomial logit model, while the motivations for different types of eco-innovations are uncovered by analysing nearly 300 actual innovation examples from the past three years.

I. Introduction

The role of technological innovation in achieving the transition towards a green economy is emphasized by several high-level policy documents dealing with sustainable development; such as the closing document of the UN's Rio+20 Summit (United Nations 2012), the „Green Growth" strategy of the OECD (OECD 2010), as well as the European Union's „EU 2020" strategy (European Commission 2010). While it is doubtful that efficiency-based approaches alone can provide a way out of the current environmental crisis, it can still be argued that they are an important element of the solution, especially since the magnitude of the challenge necessitates full utilisation of all possibilities (Jänicke 2008, Femia et al. 2001). It is therefore vital to understand what motivates companies to develop or adopt environmentally friendly solutions.

Environmental innovations are usually understood in the literature as any innovation resulting in the reduction of the environmental impact of the economic activity regardless of the reason for introducing the innovation (e.g. Rennings 2000, Bernauer et. al 2006, Kivimaa 2007, Kammerer 2009). (They include for example innovations which are primarily aimed at reducing costs, insofar as these involve energy or raw materials savings.) (Environmental) innovations can be classified into product, process and organisational innovations. My dissertation only examines technological, i.e. product and process innovations. Within environmental process innovations, a distinction is generally made between end-of-pipe and preventive (also known as cleaner production) innovations (Csutora – Kerekes 2004). End-of-pipe technology neutralises harmful substances without changing the basic production process, by introducing an additional step. Cleaner production, on the other hand, reduces the production of harmful substances from the start, by improving process efficiency, substituting raw materials, etc. These different types of innovations may have different motivations, and different resources and capabilities may be required for their implementation.

In my thesis I examine the factors influencing environmental innovations through a survey implemented in the Hungarian manufacturing industry. In this paper I provide a short summary of my thesis in the following structure: after an overview of the literature concerning the determinants of eco-innovation, I present the characteristics of the survey, followed by a summary of the key results and conclusions.

II. Factors affecting environmental innovation

The literature – starting from various theoretical standpoints – identifies several factors which may influence corporate environmental innovation behaviour. Some of these factors affect innovation activity in general, while others are unique to environmental innovations. The factors can be classified into the characteristics of the environment and the characteristics of the firm itself, while those studies examining the diffusion of specific innovations also focus on the characteristics of the given innovation.

External factors

The role of *regulation* is one of the most widely researched topics among the factors influencing the development and diffusion of environmental innovations. The theoretical explanation for the importance of regulation is provided by environmental economics, by stressing the external nature of pollution. However, from the aspect of innovation economics, it becomes clear that other externalities also hinder innovation, as innovators are usually unable to wholly appropriate the profits from the innovation whose risks they must bear alone.

In the case of environmental innovation, therefore, both pollution and innovation externalities are present simultaneously – this phenomenon is the so-called "double externality" problem (Rennings 2000, Jaffe et al. 2005). As a result of the double externality, it is to be expected that the prevalence of environmental innovations will fall behind the socially desirable level, which provides justification for public incentives for environmental innovation. Several empirical studies confirm the importance of environmental regulation among the incentives for the improvement of companies' environmental performance (Green et al. 1994, Dupuy 1997; Pickman, 1998; Cleff-

Rennings 1999; Kagan 2003; Berkhout 2005; Kivimaa 2007). This proved to be the strongest factor behind innovation in a survey conducted by the OECD (comprising data from 4,200 firms from seven countries) on an international level (Johnstone 2007), and also in Hungary (Kerekes et al. 2003). It has to be added, nevertheless, that some studies (e.g. Blackman and Bannister, 1998; Belis-Bergouignan et al., 2004; Smith – Crotty, 2008) indicate that environmental policy is far less decisive for environmental innovation than generally assumed.

The regulatory authorities are only one of the many possible players capable of exerting pressure on companies to improve their environmental performance. Other *stakeholders* such as customers, suppliers, competitors, financial institutions, various non-governmental organisations and the general public can also be sources of expectations and incentives (Del Río 2009). Unsurprisingly, customer demands primarily play a role in stimulating environmental product innovations (Cleff – Rennings 1999, Kivimaa 2007, Frondel 2007).

The role of consumer demand for eco-friendly products is emphasized by the environmental marketing literature. In this approach environmental features are seen as possibilities for product differentiation, thus making it possible to increase market share. Of course this opportunity exists only if customers have a demand for eco-friendly products and are willing to pay more for these. In the 1980s and 1990s many in the developed countries have assumed that green consumers would gain importance in the future, but so far, the reality has not lived up to this anticipation (Bernauer et al. 2006). For many customers, it seems, positive environmental attitudes are not reflected in actual purchasing decisions (Prakash 2002). In markets where the number of "green" consumers is significant, their needs are met by the introduction of special products, while other products in the product line remain unchanged (Gunningham et al. 1999).

Firm-internal factors

Important firm-internal resources related to innovation include a well-trained workforce, the company's technological competence in general, as well as financial resources (Montalvo 2008, del Río 2009). It is commonly assumed that, because large companies usually command more of the above mentioned resources, their (environmental) innovation activity will also be on a higher level (del Río 2009). In light of the empirical evidence, however, there is no clear connection between company size and environmental innovation activity. Rehfeld et al (2007), Rothenberg – Zyglidopoulos (2007) and Kammerer (2009) found a positive connection, as did Cleff and Rennings (1999) for certain types of innovations (product innovation, soil remediation). On the other hand, Cleff and Rennings (1999) for other innovation types, and Dupuy (1997) found no connection, while Bellas – Nentl (2007) found a negative connection. Similarly, company size also has no clear effect on the direction of environmental innovation (preventive or end-of-pipe) (del Río 2009).

Although smaller firms typically have fewer resources to mobilize, certain benefits may result from their size which may make innovation easier for them. According to Hansen et al. (2002) smaller firms are capable of flexibly implementing incremental changes within their existing technological and relational framework; however, implementing measures beyond these boundaries proves difficult for them. The small size often means one single or a small number of customers or suppliers, which significantly limits the information flow on environmental issues and technological opportunities for these firms.

Since environmental innovations often require a significant investment, the management's commitment to environmental protection and *environmental strategy* is crucial (Kagan et al. 2003, Hansen et al. 2002, Sharma 2000). The environmental strategy literature generally distinguishes companies by their approach to environmental regulation. In this framework, there are companies ignoring regulation, sometimes even going against it; companies which aim at minimum compliance with regulations, and companies which do more in order to improve their environmental performance. According to Steger (1993), the level of environmental risks associated with the company's activity and the market opportunities associated with environmental protection will decide what kind of strategy the firm will be likely to pursue vis-a-vis the environment.

Ultimately, how the company's environmental impact and the business opportunities in environmental protection are viewed is highly subjective, therefore a lot depends on the manager's personality and environmental commitment (Gunningham 2009). According to Hansen et al. (2002), environmental innovation decisions are characterized by bounded rationality, where organizational processes and the values, routines and preferences influencing these are crucial. Harangozó (2007) found, for example, that the majority of economically successful measures implemented in certain companies could be applied in a wider range of firms.

III. Research design and methodology

The most important lesson from the literature review is that the factors influencing companies' environmental innovation behaviour are many and diverse, and thus, by focusing on one or few factors (such as the impact of environmental regulations or customer demand for green products), we cannot obtain satisfactory explanations for firms' environmental innovation behaviour. The other main lesson is that it is useful to separatly analyse different types of environmental innovations, as their determinants as well as their results may be different.

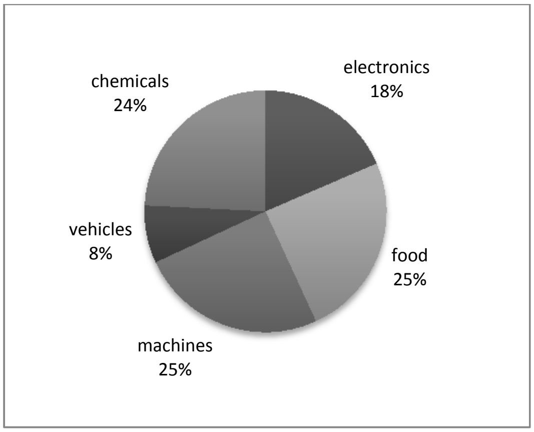
Therefore, the goals of my research were the following:

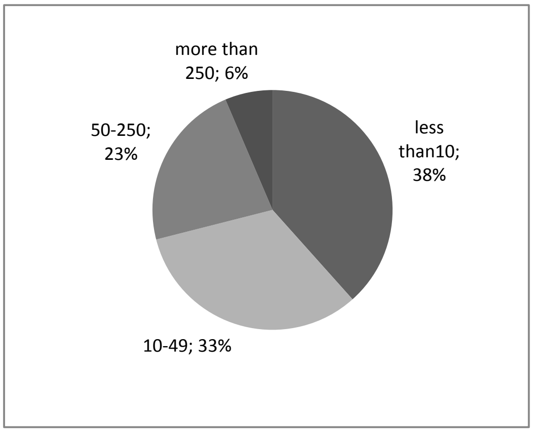
- Assess the combined effect of the factors identified in the literature review (firm size and resources; pressure from various stakeholders including legislators, perceptions about the environmental risks and opportunities of the company) on environmental innovation activity. Are they able to explain why some firms engage in environmental innovation activity, while others do not?
- Examine the nature of environmental innovations introduced by Hungarian manufacturing companies. What kind of innovations are present (end-of-pipe, preventive or product innovations; novel or adopted innovations) and are there significant differences in the determinants of these innovations?

Because available statistical data is only partially suitable for investigating environmental innovation activity and is not at all suitable for examining most of the determinants, I conducted a survey among Hungarian manufacturing companies to find answers to the above questions. The sectors included in the research – the chemical, electronics, food, machine and vehicle industries – were chosen for their important economic role (together they represent more than 2/3 of the added value produced in the Hungarian manufacturing sector). I was also aiming to ensure a relatively heterogeneous sample from the point of view of the intensity of innovation activity as well as the nature and severity of environmental effects.

During sampling it was an important goal to construct a database suitable for analysing differences between industries and firms of various sizes (that is, to collect a sufficient amount of data from each industry and size category) This means that the chemical and vehicle industries – much smaller groups within the total population of manufacturing firms than the other chosen sectors – are overrepresented in the sample. Medium and large size companies were also involved to a larger extent than their actual proportion in the total industry population would suggest (while preserving the dominance of micro and small enterprises). Altogether 1126 companies were contacted, from which 297 agreed to take part in the survey (a participation rate of 26,4%). The composition of the sample can be seen in Figure 1.

Figure 1: Distribution of the sample according to industry and company size (number of employees)





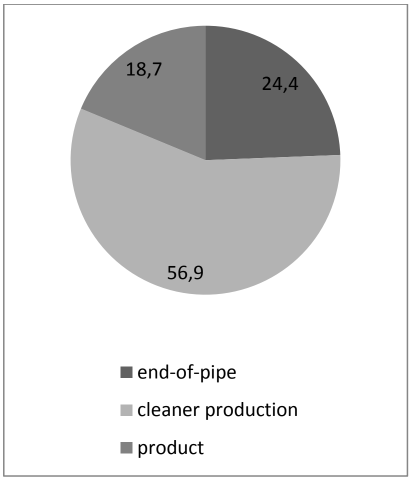
The composition of the questionnaire was aided by in-depth interviews with industry experts from the chosen sectors. The questionnaire was administered through personal interviews and contained several open ended questions, enriching the research with some qualitative elements. The questionnaire consisted of three main parts: after questions concerning the general characteristics of the companies (field of activity, size, turnover, buyers, etc.) followed questions about environmental innovation activity (this included a close look at particular eco-innovations introduced by the companies over the past three years, with description, motivations and financial as well as environmental outcomes), and finally came a set of questions concerning the possible drivers (perceived environmental effects of the company, pressure from various stakeholders, availability of various resources and capabilities) and barriers (in an open-ended question) to environmental innovation. Analysis of the data was carried out by statistical methods, such as frequency analysis, crosstabs and correlations, and the overall effect the determinants was captured using a binomial logit model.

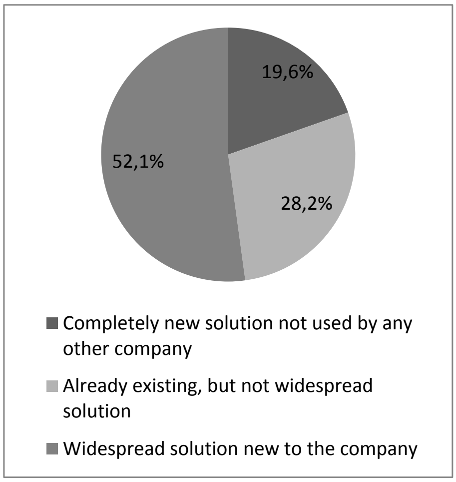
IV. Results

Environmental innovation activity

The companies in the sample introduced 283 environmental innovations altogether in the last three years, which is an average of 0.95 innovations per company (0,59 for micro, 0,94 for small, 1,34 for medium and 1,84 for large enterprises). 37,4% of firms reported no environmental innovations. The distribution of innovations according to type and degree of novelty can be seen in Figure 2. It can be seen that there were a majority of process innovations (more specifically, of preventive types of improvements). Concerning the degree of novelty it can be seen that more than half of the innovations may be placed in the 'widespread' category, while the share of completely new solutions is about 20%.

Figure 2: Distribution of environmental innovations according to type and degree of novelty



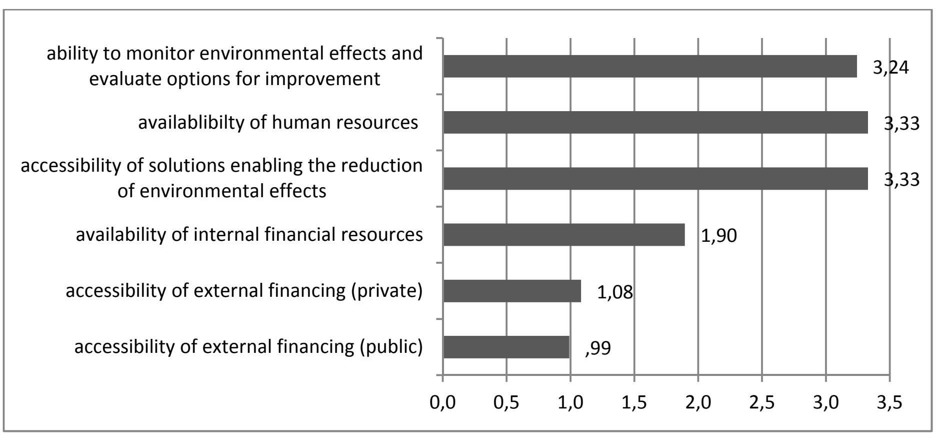


The type and degree of novelty of environmental innovations are related. End-of-pipe innovations mostly involved the introduction of already widespread technologies, while at the product level, companies in almost half of all cases used solutions that they had developed in-house. Among preventive improvements there was a large majority of adopted innovations, but within this group there are significantly more less-common improvements than for end-of-pipe innovations.

The determinants of environmental innovation activity

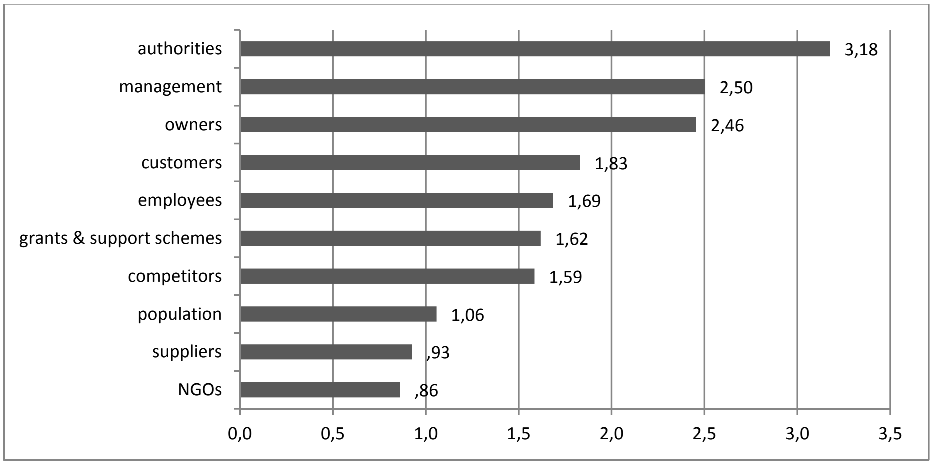
The *availability of resources and capabilities* needed for environmental innovations (more precisely, the perception of the company representatives concerning these) was examined in several dimensions and their development in the sample is shown in Figure 3. On the whole it can be said that the majority of respondents feel that the availability of 'non-material' conditions – like the ability to measure and evaluate the company's environmental effects, as well as the availability of human resources and the accessibility of environmentally friendly technologies – are adequate, while they are much less satisfied with financial issues.

Figure 3: Percieved availability of conditions of environmental innovation (averages on a scale of 0 to 5)



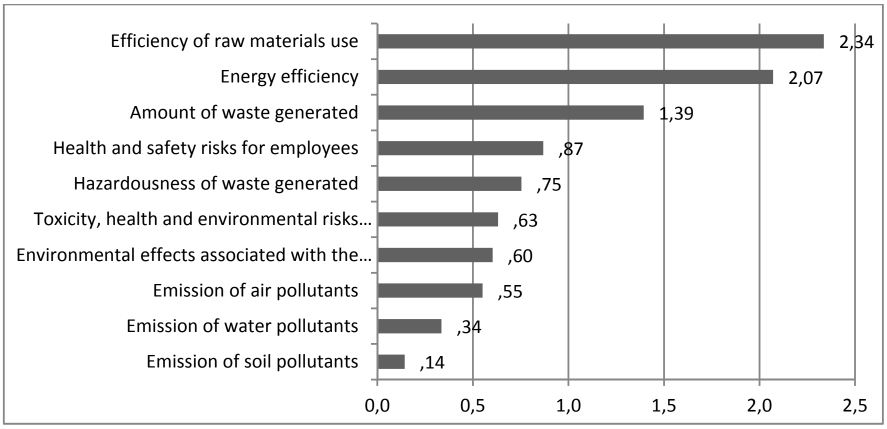
The company's various *stakeholders* may have a significant role in encouraging it to improve its environmental performance. The strongest perceived influence is exerted by the authorities, this is followed by the role of the management and owners. Next are customers and employees, grants and subsidies, then competitors. The weakest pressure is perceived from the public, the suppliers and the NGOs. (Figure 4)

Figure 4: Pressure felt from various stakeholders to improve environmental performance (averages, where 0 = no pressure and 5 = very strong pressure)



The percieved *severity of the company's environmental impacts* may also influence the decision makers' motivation to reduce these impacts through environmental innovation. Figure 5 shows the averages of the respondents' assessments of the environmental impact of their company across various dimensions. (Clearly, this representation reflects the subjective estimations of the respondents rather than exact measurement data. However, in the given situation this is exacly what is needed, as environmental innovation may be encouraged if the company's decision makers *feel* that the environmental effects are too great, and therefore should be reduced).

Figure 5. The perceived environmental effects of companies (averages on a scale of 0 to 5 where 0= negligible, 5= very high)



Judgement about environmental effects – not surprisingly – heavily depends on company size and there are considerable differences between industries too. On the whole, we can say that most respondents think that their company's emissions are negligible (averages measured using a scale of 0 to 5 do not reach 1.5, even in the categories of highest impact). Our respondents considered somewhat more significant only the quantity of waste generated and, mainly, raw materials and energy utilised. One possible reason for is that these are the effects which companies mostly need to manage as financial expenses.

Examination of the combined effect of determinants by logistic regression

The effect of the factors presented above on environmental innovation activity was examined in a binomial logit model. The firm's resources and capabilities, pressure from various stakeholders and perceived environmental impacts were used to predict the presence or absence of environmental innovations over the studied time period, along with certain general characteristics. The "forward" method was used to create the regression model; from the previously described variables this method only incorporates those in the model which significantly improve its explanatory strength. Table 1 provides a summary of the variables included in the analysis and the final model.

Table 1: Factors examined in the logistic regression analysis

	GENERAL COMPANY CHARACTERICS	**RESOURCES AND CAPABILITIES**	**PRESSURE FROM STAKEHOLDERS**	**ENVIRONMENTAL EFFECTS OF THE COMPANY**
Factors included in the model	**Change in financial performance after taxes in the studied time period****	**Human resources**** **Financial resources***	**Owners***	**Effect of products**** **Emissions to air*** **Hazardousness of waste***
Factors not included in the model	Industry Main customers of company	Ability to measure and evaluate environmental effects Availability of technologies suitable for improving environmental performance	Management Employees Customers Suppliers Competitors Environmental regulations NGOs Local population	Use of energy Use of raw materials Quantity of waste Emissions to water Emissions to soil Hazardousness of raw materials

(** indicates that the factor is significant at the 99% level, * indicates significance at the 95% level. Pseudo-R^2 for the overall model is 0,42, the share of correctly classified cases is 75%)

The first factor is the change in the company's earnings after taxes: the companies which reported increases in their earnings over the last three years had a significantly greater chance of belonging to the innovative category than those whose performance had stagnated or reduced. Concerning human and financial resources three categories were compared: those who perceived the availability of these to be not at all, moderately or completely adequate. While in the case of human resources only a strongly positive answer increased the chances of belonging to the innovative category, for financial resources an average answer was already enough (this is most probably due to the fact that very few companies considered their human resources to be inadequate, so from an innovation point of view there is a more significant difference between the moderately and fully satisfied). Regarding the strength of pressure from owners, three categories were compared: weak, moderate and powerful pressure, and here too the effect of the strongest category proved to be significant.

In the case of environmental effects, as here most of the companies reported having a negligible environmental load, only two categories were compared: those who judged their given environmental load to be absolutely negligible (0 on a 0 to 5 scale), and those who indicated a different value (concerning raw material and energy use and generation of waste, where the distribution of answers was not so extreme, I differentiated between three categories but these did not prove to be significant in the model). From the environmental effects, those concerning products, hazardous waste and air pollution were included in the final model.

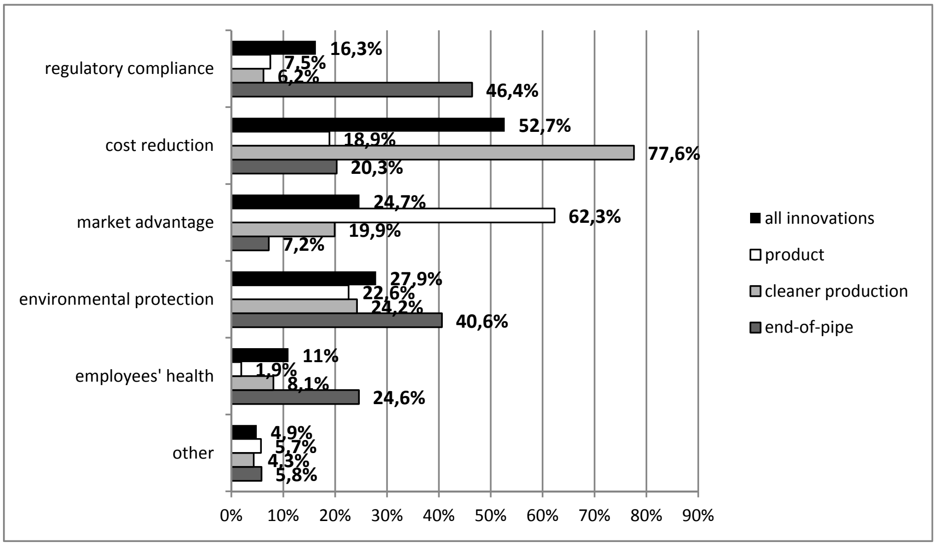
If a variable is not featured in the model, it does not necessarily mean that its influence is not significant on the presence of environmental innovation; it only shows that the variable does not further increase the explanatory power of the model compared to the already included variables. For example, the influence of the management is at the starting point not much weaker than the influence of the owners, but these two factors were closely related in the sample, so after incorporation of the owners into the model, adding the management would not provide significant new information. The situation is the same concerning the availability of human resources and the ability to perceive and evaluate environmental effects, where the former was featured in the model. The effect of environmental regulations drops below the significance level in the fourth step after the inclusion of air pollution.

I also conducted an analysis that includes company size (a composite variable created from the number of employees and revenue); in this case, while size is significant and is thus featured in the model , only air pollution was removed out of the variables featured in the first version; meaning that the rest of the determinants have significant explanatory strength irrespective of (and additionally to) company size. Overall it can be said that the main groups of studied determinants are all important from the point of view of environmental innovation activity, while at the same time, even together they can only partly explain the presence or absence of innovations – for identification of the missing links the study of the incentives behind specific innovations offers an interesting lesson.

Incentives behind specific environmental innovations

Figure 6 shows the motivations behind specific environmental innovations. (This was elicited in an open-ended question; answers were later coded. Respondents had the possibility to cite several motivating factors concerning one innovation.) The most frequent reason behind the innovations was cost reduction, which was the typical reason for introducing cleaner production innovations. Concerning end-of-pipe innovations respondents mentioned meeting the requirements of environmental regulations the most often, while for product innovations it was customer demands and the possibility to gain markets that were primarily cited. Environmental protection appears as a motivating factor mostly in the case of end-of-pipe innovations, as does protection of the health of employees. It should be noted that from the cases where environmental protection was mentioned, it was mentioned as the sole reason for the innovation only in every fourth case, while cost reduction, market considerations and regulatory compliance were mentioned alone in more than half of all cases.

Figure 6: Factors motivating different types of environmental innovations (% of references)



Some interesting differences appear between the motivating factors for novel and adopted innovations. Environmental regulations were mentioned more often in relation to widespread innovations (16.4% of all innovations and 22.6% of widespread technologies), similar to protecting employees' health (for completely new innovations this reason was mentioned only once). Cost reduction, meanwhile, was mentioned as motivation in more than half of all innovations (53.2%) but only for a third of completely new solutions (34.5%). This is understandable, as a new technological solution always means more risk - those who make changes in order to reduce expenses are likely to choose a trusted piece of technology. On the other hand, gaining a market advantage – not surprisingly – occurs in greatest proportion for new solutions, as widespread methods are obviously less suitable for that purpose (24.6% for the former and 12.3% for the latter).

In the case of environmental protection considerations no significant connection was found overall with the novelty of the innovation; however, for preventive innovations this was mentioned as a motivating factor significantly more often for new (37.5%) and less widespread (30.8%) innovations than for established technologies (16.5%). This can also be explained when considering that a company which places much emphasis on environmental protection is probably more willing to innovate in this area and is not among the last to adopt environmentally friendly technologies. The adoption of widespread technological solutions in the case of preventive innovations mostly means general modernization and the changing of old appliances where environmental protection is obviously not the primary motivation.

V. Conclusions

In the literature review several factors were identified which can be linked to environmental innovation activity, including perceptions about the companies' environmental effects, pressure from various stakeholders, and the adequateness of available resources and capabilities. The combined effect of the determinants was examined in a binomial logit model. The resulting model, containing the change in the firm's annual earnings, the perceived availability of financial and human resources, pressure from owners to improve environmental performance, and perceived environmental effects related to products, hazardous waste and air pollution has medium explanatory power regarding the presence or absence of environmental innovations. Inclusion of firm size in the model has shown that size, though important, is not a substitute for the above factors, which also affect environmental innovation activity on their own, not only through firm size. Identifying the factors not explained by the model was made possible by the analysis of specific environmental innovation examples.

Contrary to the everyday use of the term, environmental innovations are defined in the literature as innovations which *result* in a decrease environmental impact. This approach substantially widened the scope of innovations covered by the research since only a third of these were motivated by explicit environmental considerations (although improvements introduced because of regulatory compliance or the protection of workers' health were also directly aimed at decreasing environmental effects, all these together only make up less than half of the innovations covered in the survey). The most common motivation (cited by respondents for more than half of the innovations) was cost reduction, pointing to the fact that firms' environmental protection decisions cannot be analysed separately from their efforts to reduce operational costs. Cost reduction potential of course depends on the nature of the innovation itself and differs for each technology in question (which is why it could not be included in the overall model). An important question for further research therefore appears to be how actively and through what channels firms gather information about more resource-efficient technologies, and how differences in these search strategies can be explained.

My research has also shown that environmental incentives from end consumers and the civil society are very weak in Hungary today. However it is also clear that regulations are not able to effectively promote environmental innovations in all areas. In this light, it is worth considering suggestions from the literature which advocate indirect forms of state intervention by strengthening consumers and the civil society. The significant role of internal stakeholders found in the sample indicate that the importance of shaping the consciousness of business actors as well as the population as a whole is also not to be underestimated.

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