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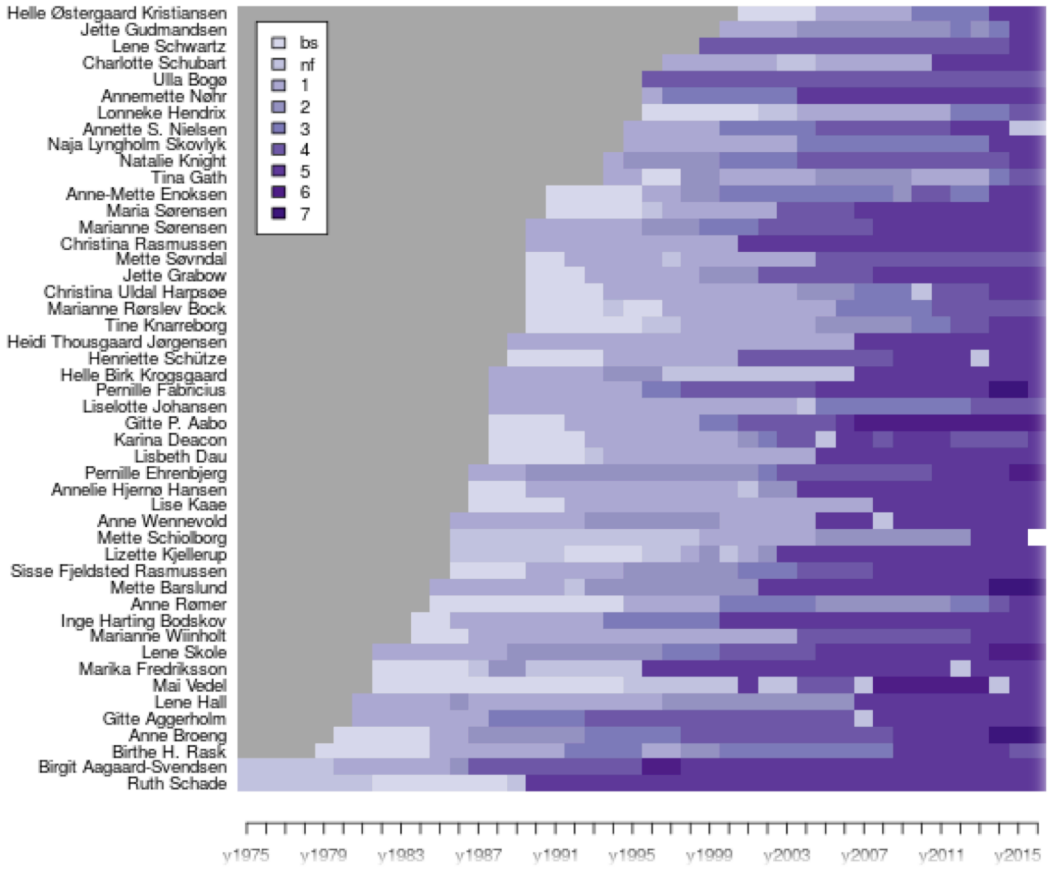
Breaking Glass Ceilings?
The rise of the female CFO

A sequence analysis of female CFOs in top Danish companies



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Abbreviations

BCG	Boston Consulting Group
CA	Cluster Analysis
Cand.merc.aud	Master's in Business Administration and Auditing
EU	European Union
FC	Finance & Conglomerates
GG	Gender Gap
GGGR	Global Gender Gap Report
GC	Glass Ceiling
GCH	Glass Ceiling Hypothesis
GD	Graduate Diploma
IEC	Industry, Energy & Construction
L	Large
M	Small-medium
OM	Optimal Matching
PCFO	Performance CFO
PH	Pharmaceuticals
PSF	Professional Service Firms
PwC	PricewaterhouseCoopers
SA	Sequence Analysis
SAPA	State Authorised Public Accountant
SSI	Statens Serum Institut
TR	Transport
TS	Trade & Services
Very Large	V
WEF	World Economic Forum

Abstract

Women currently only hold 27% of all leadership positions and 7% of all executive management positions in Danish companies, and this places Denmark at the bottom of the World Economic Forum's Global Gender Gap Report regarding women in leadership positions. I highlight this fact because it is inconsistent with the international media's portrayal of Denmark as one of the most equal countries in the world, and it questions why Denmark's progress in equality does not follow suit in executive management suites. Previous researchers that have sought to explain gender gaps in leadership positions have mainly used the Glass Ceiling Hypothesis; the notion that women can only advance to a certain level in corporations due to the sole reason that they are women. There is a gap in existing research in terms of explaining how some women have been able to break Glass Ceilings. As a matter of fact, recent years have shown an upsurge in female leadership, particularly in the male-dominated industry of Finance. This means that, over the past years, the number of women CFOs in Danish companies has significantly increased, and this Thesis will be the first official attempt to study this development and its implications for breaking Glass Ceilings. In order to take a new approach, I will refrain from investigating structural barriers, which has been the focus of many previous scholars, and instead focus on the women's occupational histories. In order to study the women's careers I borrow tools and methods from Sequence Analysis and Optimal Matching. This approach allows me to investigate whether the women's careers are coincidental or follow clear trajectories. My results suggest three general career patterns; firstly, a group of women displays orderly careers, dominantly advancing within the same company, secondly, another group exploits career moves across companies and industries to their own advantage, and thirdly, a group of women move back-and-forth in position levels in order to reach the CFO level. My data indicates that the financial crisis in 2007-2008 created career opportunities for the group of women, that I chose to study, and for this reason I will discuss what implications the hiring of women under high levels of economic uncertainty have for breaking Glass Ceilings. I will conclude that the financial crisis created a window of opportunity for the studied women, but this does not mean it created equal opportunities for men and women.

Table of Contents

Chapter 1: Introduction

When Denmark is mentioned in the international media, the country is often described with words such as "happy" and "equal". Together with its Nordic neighbours, Denmark is repeatedly placed in the top of the World Economic Forum's (WEF) Global Gender Gap Report (GGGR) and Denmark is successful on many gender equality parameters, specifically thriving in areas of educational attainment and labour participation (GGGR 2015:157). However, studying gender equality in senior management positions reveals a different picture. In 2015 women held only 38% of all Danish senior management positions, ranking Denmark at number 81 out of 145 studied countries, and outperformed by countries such as USA (12), Rwanda (53) and Ecuador (39) (GGGR 2015). The Boston Consulting Group (BCG) reported further disappointing numbers in January 2016, noting that women hold only 27% of all leadership positions and only 7% of all executive management positions in Denmark (Vestergård 2016). These numbers are surprising because Denmark is considered one of the most attractive countries to work in for women. Particularly, because of popular pro-family government policies including generous maternity leave and state provision of childcare (OECD 2016).

The fact that few top management positions are held by women in one of the world's most 'female-friendly' countries was noticed by the Economist in 2014, but the finding was not limited to Denmark. The Economist reported that all Nordic countries ranking in the top five of WEF's GGGR, at that time Iceland, Finland, Norway, Sweden and Denmark, experienced large gender gaps (GGs) in management positions. The author argued *"The egalitarian flame that burns so brightly at the bottom of society splutters at the top of business"* and coined the phenomenon: 'The Nordic Mystery' (Economist 2014). While Finland, Norway and Sweden have shown successful attempts to reduce their gaps from 2014 to 2015 and consequently moved up WEF's list, Denmark has not followed its Nordic counterparts and today ranks number 81 (GGGR 2015). Despite these numbers, one specific area is showing signs of progress, although still male-dominated. This area is finance.

In 2013 Bloomberg reported that the number of women CFOs in top American companies was at its highest and had increased with 35% in comparison to 2012. This means that more than 40 women were serving as CFOs in 2013 in a US top500 company in comparison to just a year earlier (Frier 2013). Surprisingly, the Associated Press reported that in 2014 American women CFOs out-earned their male counterparts. The news organisation confirmed that on average women CFOs made USD 200.000 more than men (Zarya 2015). This is an interesting oberservation since women in general make 77 cents to the dollar in USA (Jowit 2015). Yet, we

see a development in one of the highest, most influential and most respected executive management positions where women are cashing out more than men. The Danish newspaper, Berlingske Business, reported a similar trend in Denmark in 2012 (Erhardtsen 2012). The newspaper investigated Denmark's top1000 companies, the so-called Guld1000 list where Danish companies are ranked according to turnover, and concluded that 19 women were in charge of finance (Appendix M). These companies included some of Denmark's most renowned firms like Bestseller, Scandinavian Tobacco Group, TDC and Siemens Wind Power. Turning to Denmark's largest 500 companies today, there are presently 40 women serving as CFOs (Appendix A): a steep increase in comparison to Berlingske's study in 2012. Several of the women from Berlingske's list have also advanced since then and are now working as professional board members or CEOs. This shows that even in Denmark where progress is slow, a pattern is emerging in terms of women in leadership positions in finance.

My intention is not to highlight the fact that women are entering the executive management team, as this is not something new. In fact areas like Communication and Human Resources have for years been a popular choice for women in high-level positions and these women take up a large share of the 7% women executives in Denmark. However, the areas of Communication and Human Resources have not led women to the highest attained position as CEO and it appears that the position of CFO can open those doors (Erhardtsen 2012). As the CFO is often the second highest ranking in the company hierarchy, the CFO position has been a natural stepping-stone to the CEO position for many (Mortensen 2016). In US one of the best known women who have taken this step is the CEO of PepsiCo, Indra Noovi (Frier 2013) and in a Danish context; Pernille Erenbjerg, who today serves as CEO in TDC (Erhardtsen 2012). Erenbjerg is currently the only woman serving as CEO in a Danish C20 index company. The number of women CEOs is low in Denmark, but the 'rise of the female CFO' might serve as a window of opportunity for closing such GCs. In the following pages I will set out to study how the increase in women CFOs can be understood and discuss its implications for closing GCs in executive management suites. In the following pages my case will be Denmark.

1.1 Research Question

The aim of this study is to gain a more general understanding of how women CFOs in Denmark's largest companies have advanced to the executive management suite and to discuss what implications this new development have for bringing about more women in leadership positions in Denmark. Specifically, I ask the following research question:

How can we understand the increase in women CFOs in top Danish companies and what significance does it have for breaking Glass Ceilings?

My research will be guided by the following sub questions:

On what conditions in terms of occupational history have these women reached CFO level?

- Are the women's career paths coincidental or do they follow clear trajectories?
- When did this development begin?
- Based on these findings, what can be said about its implications for breaking Glass Ceilings?

1.2 Outline of Thesis

The following pages will be divided into eight chapters in order to address the research question at hand. The coming chapter will provide a thorough overview of existing literature concerning Glass Ceilings (GCs). I will especially argue for the need to study successful women who have been able to break GCs by placing a new focus on individual career trajectories rather than structures reducing women's career opportunities. The following chapter will briefly introduce the legal framework surrounding my case followed by the story of the rise of the CFO while familiarizing the reader with theories and concepts relevant for the analysis. The chapter on 'philosophy of science' will introduce research strategies and epistemological and ontological considerations, and the following chapter 6 will apart from explaining data selection and criteria also introduce the preferred choice of method for the thesis; Sequence Analysis (SA). Chapter 7 will apply the methods introduced in the previous chapter to my sample of women finance executives structured by variables that I argue are key to the women's occupational histories, namely position levels, organisation size and industry type. Finally chapter 8 will discuss my findings and provide a general discussion for the rise of the women CFO's implications for breaking GCs. Chapter 9 will present conclusions and recommendations for future research.

Chapter 2: Literature Review

This section will focus on previous research relating to the research question at hand: "how can we understand the increase in women CFOs in top Danish companies and what significance does it have for breaking GCs?". The aim of this chapter is to place the thesis within

the present literature, and to highlight how my study can contribute to existing understandings of GCs. The following literature review will begin with an overview of the originators of the GC Hypothesis (GCH). Then I will identify more recent developments within the GC literature, followed by an outline of the countries that have been of particular interest to researchers, closing in on the literature that deals with the principle focus of this thesis. Lastly, I will argue for my contribution to existing research on GCs.

2.1 Glass Ceilings

Researchers have been interested in the low representation of women in leadership positions for more than 30 years. Most research has sought to identify the barriers that women face disproportionately to men on their way to the top in the corporate world. Much research has sprung from the indication that the low representation of women cannot be explained by lack of merits, but are rather due to *structural* barriers. A great share of the research has sought out to investigate the Glass Ceiling Hypothesis (GCH) (Kanter 1977, Morrison et al. 1987, Hymowitz 1986, Epstein 1995, Hulten 2003, Blair-Loy 2010, Baxter 2010), the notion that women can only advance to a certain level in a company hierarchy, simply because they are women. Kanter first developed the hypothesis in 1977, followed by Morrison et al. in 1987. Morrison et al. explains the GCH as: *"[…] a transparent barrier that kept women from rising above a certain level in corporations. It applies to women as a group who are kept from advancing higher because they are women"* (Morrison et al. 1987:13).

In 1995 Epstein concluded that GCs were imposed by gatekeepers and was largely due to gender stereotypes. She reported that men do not to the same extent face stereotyping, and she noted that some progress had been made, but also that success depended on support from men. Gender stereotypes, specifically that people assume personal attributes based on gender, and that such perceptions impact occupational advancement is a common theme throughout much of the GC literature (Morrison et al. 1987, Epstein 1995, Kanter 1977, Dubno 1985, Ragins 1998, Heilman 2002, Blair-Loy 2010). Recent writings have focused on gender bias in hiring and promotion practices (Ridgeway 2004, Roth 2006, Gorman 2015). Within this literature Gorman (2015) argues that decision makers are more likely to select candidates of their own gender and race. Gender bias perspectives are also apparent in the Danish corporate world (including Nordea, Maersk, ISS, IBM and Lego), when talking to heads of diversification and recruitment (Dobbins 2009, Hall 2015, Mortensen 2015, Vestergaard 2016, CBS 2016).

A more recent article in Harvard Business Review revisits the GCH, and argues that the theory has outlived its usefulness (Eagly et al. 2007). The authors argue that a "labyrinth" is a more appropriate term for the barriers that women face in the corporate world. "Labyrinth" adequately brings together all the barriers that women encounter acknowledging all complexities and challenges rather than just one absolute barrier or ceiling. Supporters of this theory recognise gender stereotypes in terms of leadership styles. Other researchers have applied social network theory and studied networks' importance for occupational advancement (Hagen 1998, Blair-Loy 2001, Olsson 2004, Eagly et al. 2007, Briscoe et al. 2014). This has proven an interesting angle to GC literature because researchers have found evidence of women experiencing limited access to informal networks. In this regard, Briscoe and von Nordenflycht (2014) make an interesting observation in their study of junior professionals' employment of advancement strategies in large US law firms. They conclude that internal and external strategies work differently for men and women. Women appeared to be more successful when applying external network strategies, referred to as 'rainmaking'.

Most GC research is found within an Anglo-American context and largely within finance and legal professions (Epstein 1995, Hagen 1998, Ragins 1998, Blair-Loy 1999, Blair-Loy 2001, Gorman et al. 2010, Briscoe et al. 2014). Organisations with clear organizational hierarchies have been the preferred choice of case studies. Such organisations proved to have strong internal labour markets (ILMs) making it rather easy to identify the necessary career steps to get to top-level. A weakness of existing studies is that they have predominately been based on interviews, and there have been minute attempts at using more quantitative methods. Consequently, a dominant share of the existing research has focused on stereotyping. Some researchers have employed more statistical methods, but the focus has been mainly on gender wage gaps (Albrecht 2001, Arulampalam 2007, Bertrand et al. 2001). It appears that the existing literature has shifted focus from individual attainments to the identification of structural barriers limiting women from advancement while employing mainly quantitative measures. By doing so, the majority of existing literature have overlooked the women who have been able to break GCs. One of the seldom researchers who have taken an individual-level approach, employed quantitative measures and studied women who have advanced above GCs is Blair-Loy (1999). This specific article will act as the theoretical corner stone of my thesis, and will be introduced in my detail in chapter four.

Turning to the Nordic countries, researchers have especially been interested in Norway (Grosvold 2007, Casey 2011, Teigen et al. 2012, Bertrand et al. 2014,), because it was the first country in the world to impose gender quotas, which required that at least 40% of all corporate

boards consist of women (Solsvik 2013). Few researchers have sought to investigate the "Nordic Mystery". The few attempts that exist focus largely on political discourses and perceptions of gender equality (Teigen et al. 2005, Niskanen 2010). The majority of research within the GC literature that concerns the Nordic countries have focused on regulation and have been cross-country comparative studies.

To sum up, the focus of a large share of earlier GC research has been identifying structural barriers to women's advancement and the notion that women can only advance to a certain level in a company hierarchy, simply because they are women. The researchers have been interested in the problem that GC cause and its implications and justifications for the GCH are largely derived from gender stereotypes. Far less research has focused on the women who have successfully advanced beyond GCs. Nonetheless, we are increasingly observing more women in leadership positions and lately we have seen an increase in women CFOs. The rise of these women and their possible implications for breaking GCs will be the focus of this paper. The opportunity dynamics that this development causes will be central to the paper, rather than having a problem as the main focus (Bryman et al. 2015:19). This proves an interesting contribution to the GC literature because it will enable me to generate knowledge about how women have advances to top-level positions despite GCs and gender stereotypes.

Furthermore, few studies in the GC literature have had the individual as the focus of analysis, but concentrated their research on structures. Nonetheless, I argue that a focus on what individual career choices culminate in leadership positions is relevant for companies in terms of hiring and advancement practices. Knowledge derived in this paper can be used as input in career guidance and mentoring programmes. Studying women in top executive positions is important because they have the ability to affect other employed women's careers (Blair-Loy 1999:1347). A better understanding of the women who have reached top-level positions can help identify the road to success. I will contribute to the GC literature by placing more focus on how certain women have overcome structural GC barriers, and I will do so by applying more quantitative measures that explores patterns in individuals' careers. Additionally, my thesis will be the first official attempt to study the rise of the women CFOs in a Danish context and its implications for breaking GCs.

Chapter 3: Institutional Context

The issue of low representation of women on boards and in executive management positions has repeatedly been raised in the political arena in Denmark. In this chapter I will

provide a quick overview of the Danish legal context and highlight the most important Danish legal Acts concerning gender equality. This frames the institutional context for my study.

Danish gender equality law can be dated back to 1919, when Denmark adopted its first equal pay Act. Since then a number of Acts have followed (Gyldendal 2016). Today there are three central laws to prevent gender discrimination in workplaces and public offices. These are the Danish Act on Gender Equality (1988), Equal Pay Act (1976) and Equal Treatment Act (1978). The Danish Ministry of Children, Education and Equality states that: *"Today, women and men in Denmark share the same formal rights, obligations and opportunities in society. However, Denmark aims at securing de facto gender equality as well de jure as for women and men"* (UVM 2016). According to the Ministry, gender equality is regarded as a general principle and objective of Danish policy and this has been the case since 1919. However, when it comes to GCs in leadership positions, Denmark has been reluctant to take affirmative action.

Norway was the first European country to introduce gender quotas on management boards. Since Norway took action a number of countries have followed suit, including France and Iceland, and most recently Germany (Smale 2015). Opinions on whether gender quotas raise the number of women in leadership positions are diverse, but it is a fundamental tool that institutions like the European Union (EU) is seriously considering. The aggregate opinion among Danish politicians and private companies is that gender quotas are not effective tools for closing GCs in executive management suites. Instead the opinion is, that initiatives should be strictly voluntary (Ildor 2016).

In 2013 the Danish government introduced a law that obliged companies to set targets for female representation in leadership positions and boardrooms as well as account for how to achieve those targets. Companies that met two or the following three criterions were targeted: companies having a minimum of DKK 313 mil. in turnover, a minimum of 250 employees and a balance sheet of 156 DKK mil. (Erhvervsstyrelsen 2015). The law also directed companies to set new targets once the initial targets had been met in order to slowly work towards a 40 % threshold. In March 2016 the law was changed and reintroduced with more flexibility (Erhvervsstyrelsen 2016). A significant change to the law was the annulment of the requirement that companies set new targets once the old were met.

In sum, three Acts are central to the study of GCs in Denmark: the Danish Act on Gender Equality, Equal Pay Act, and Equal Treatment Act, all adopted in mid to end 1970s. Additionally, recent legal developments concerning Denmark's low representation of women in

leadership positions and boardrooms aims at flexible initiatives rather than affirmative action in contrast to many of the country's European neighbours.

Chapter 4: Theoretical Framework

The following chapter will present key theoretical concepts relevant for the analysis. The intent is to let the following sections provide the theoretical framework and background for the analysis and help the reader achieve a better understanding of women's career trajectories and implications for GCs. The focus of the three subchapters will be to introduce the thesis' approach to the study of professions. Second to explain the rise of the CFO and deal with important concepts such as financialization and shareholder-value. The second section will present Blair-Loy's work on executive women in finance (1999) that will act as the theoretical background and principle inspiration for the thesis. Lastly, I will present the principle of homophily. In all sections I provide solid arguments for the choice of theory and their relevance for the analysis.

4.1 From Functional to Powerful: The Rise of the CFO

There has been a growing social scientific interest in the study of professions and their impact on organisational structures and the wider society since the 1950's. Especially neo-institutional approaches to professions highlights that professionals play a powerful role in society today and that professions have become key players in socio-economic change (Saks 2016). These researchers recognise professions as part of a global ecology of competing institutions operating in both public and private domains and mediating between different knowledge pools (Abbott 2015, Seabrooke 2014). For example Dobbins (2000) argues that it was personnel managers rather than law or civil rights activists that framed equal opportunity in corporate America. These researchers accept a larger complexity to the study of professions and as a result do not view professions as independent units and in isolation from other actors, but as dynamic ecologies: *"When we call a set of social relations an ecology, we mean that it is best understood in terms of interactions between multiple elements that are neither fully constrained nor fully independent"* (Abbott 2005:248). In this view, professions are not seen as fixed functional structures, but as products of interaction and competition between different ecologies. Following Abbott, professional tasks are not set or predetermined, but can be contested by creating alliances across ecologies. Seabrooke and Tsingou highlights: *"The value-added of the conception of linked ecologies is to investigate how actors form coalitions and alliances to transform how things are done within areas not formally within their remit"*

(Seabrooke and Tsingou 2009). By creating alliances, professionals have the ability to move into new professionals domains. The idea of inter-linked ecologies is relevant to the study of the CFO, because as will be shown next their role have changed. The inter-linked ecologies approach does not presuppose fixed professional entities, rather views jurisdictional battles in relation to their surrounding environment and accepts that ecologies can be contested by creating alliances.

Drawing on earlier work, finance professionals can be categorised as an exclusive occupational group that has special technical knowledge about a specific domain: *"[Finance professionals] can charge a high price because their expert knowledge is assumed to add value to clients' firms by increasing profits, reducing environmental uncertainties or increasing managerial effectiveness"* (Blair-Loy 2001:56). The majority of present finance professionals work within the private sector, either employed at professional service firms like Deloitte, EY and KPMG, in the banking sector or in finance and accounting divisions in corporate companies. Finance professionals have for years been preferred candidates for executive positions, because it is believed that they add tremendous value to companies because of their technical knowledge (Kanter 1983, Blair-Loy 2001). In comparison to earlier executives that largely had technical knowledge about production, Kanter argues that finance professionals have from the 1970's and onwards occupied executive positions because they increasingly saw "[…] *the corporation as a portfolio - a bundle of movable assets to be bought sold and diversified"* (Kanter 1983). Earlier studies have reported that finance competences are not only common among executive positions, but also that managers with such backgrounds have advanced within companies with a much faster pace than colleagues with other backgrounds (Blair-Loy 2001:54). The Danish business magazine, Finans, reports a similar trend and notes that a large majority of current Danish executives hold educational backgrounds within finance and economics (Mortensen 2016). It appears that finance professionals and their skill-sets are highly valued in high-level positions in companies today.

Furthermore, finance as an industry has increased its influence within corporations (Blair-Loy 2001, Zorn 2004, Epstein 2005, Lazonick et al. 2010). This phenomenon is referred to as 'financialization'. Epstein uses a broad definition of the term and refers to financial markets' growing in importance in the economy in general: *"[…] for us, financialization means the increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies"* (Epstein 2005:3). Writers have ascribed the concept of 'financialization' different meanings, but a dominant denotation of the concept is the power of 'shareholder value' in corporations as a mode of governance (Epstein 2005:3, Aglietta 2010, Lazonick et al. 2010). This view is closely linked to the principle-agent theory (Lazonick et al. 2010:16). It indicates that,

because of financialization, the focus of corporations today includes satisfying shareholders and meeting expectations of the financial markets. Therefore, the focus is not purely on delivering profits or meeting costumer expectations. The definition assumes that shareholders have power over other stakeholders and, in general, takes a more capital market approach to business rather than an industrial one. Aglietta notes the new mode of corporate governance: *"Shareholder value is just the norm of the transformation of capitalism, which has promoted this system of public valuation. Corporate governance is the set of behaviours which induce the firm to maximize shareholder value"* (Aglietta 2005:149)

Financialization and the increased focus on shareholder value rather than profits have increased the demand for finance professionals and their competences. This trend has also had an impact on the CFO position in terms of their decision-making power. According Zorn (2004) CFOs are some of the most powerful players in corporate America today. He investigated 400 large American companies in the period between 1963-2000 and found significant evidence of the expanding role of the CFO. He argues that this happened in two stages, ultimately culminating in the shareholder value explanation. First, the increased role throughout the company begins with *"[…] the conglomerate ideal to handle the funding of diversifying acquisitions"* (Zorn 2001:345), what Kanter also refers to as the funding crisis (Kanter 1983), and also as result of regulatory changes to accounting practices. He reports that the shareholder-value-CFO is a product of historical and environmental developments and concludes, *"CFO positions have become firmly entrenched at the top"* (Zorn 2001:362).

Zorn's article is from 2001, so it does not include considerations about the financial crisis of 2007-2008. Yet, he recognised that *"there is some reason to believe that a regulatory change may once again further boost the CFO's popularity*" (Zorn 2001:362). The role of the CFO is widely discussed among the top professional service firms (PSFs) such as Deloitte and PriceWaterhouseCooper (PwC) (Ajit 2010, Bishop et al. 2012, Apanaschik 2015, Fabech 2015, Larsen 2015, Jensby 2015, 2016). Deloitte and PwC notes that the CFO has gained an even more central role post the financial crisis because of the CFO's ability to safely navigate under economic distress. It is evident that companies that have managed the crisis successfully have been led by a competent CFO (Bishop et al. 2012, Fabech 2015).

As the CFO has increased in power throughout the company, so have the CFO's work responsibilities. Earlier head of finance managers belonged to back-office functions, mainly handling operational finance such as bookkeeping, monitoring debt and capital structures, preparing tax statements, financial statements and compliance measures (Zorn 2001:347). Today CFOs are at the forefront of corporate management and have advanced to the level of Chief.

They are increasingly taking part in corporate decision-making and serve as right hand to the CEO (Zorn 2001, Fabech 2015). Consequently, CFOs today are involved in both strategic and operational decision-making. Zorn explains: *"CFOs gained critical say in key strategic and operational decisions, from evaluating business unit performance, inventing new ways to leverage capital, managing acquisitions and divestitures, and fending off hostile takeover attempts, to serving as the company's primary ambassador to investors and financial analysts"* (Zorn 2001:347). In comparison to earlier duties, these new responsibilities popularly frame the CFO as a 'Performance CFO' (PFCO) (Bishop et al. 2015). A PCFO uses his/her financial expertise to take part in the companies' strategic decisions and has delegated classical responsibilities such as budgets, preparation of financial statements and compliance measures to other finance employees. The PCFO thinks finance in every aspect of commercial business and does not view finance in isolation. Such thinking is probably best illustrated by the popular term 'business partnering' (Larsen 2015, Fabech 2015, Bishop et al 2015, Jensby 2015). Partner at Deloitte, Christian Jensby explains: *"Business partnering is about how to use insight, transparency and figures – together with business – to make better decisions. Specifically this means that finance professionals sits at the negotiating table when in dialogue with suppliers"* (Fabech 2015). Together with more traditional responsibilities like operational finance and compliance measures, business partnering is often viewed as one of the most important tasks for a modern-day CFO. However, the PCFO goes beyond that to include new responsibilities such as HR, attracting and developing talent, and IT such as information and system optimization (Bishop et al. 2012). However, we know little of whether the women who are increasingly occupying these positions belong to the category of the PCFO or serves in back-office functions, and this will be investigated in my thesis.

4.2 Executive Women in Finance

In my study I seek to highlight that women are increasingly occupying the position of the CFO, even though the finance industry continues to be male-dominated. The most relevant writing to this notion is Blair-Loy (1999). In her article, she studies both objective and subjective aspects of a group of women finance executive's careers. She notes that media tends to explain successful women in male-dominated industries, like finance, as coincidental and by accident. She also notes that the women themselves usually explain their successful careers as something special and out of the ordinary: *"I did something unusual"* (Blair-Loy 1999:1346). Blair-Loy sets out to study whether a group of successful women's careers are random and accidental, as many of her respondents and the public largely believe, or if obvious patterns can be observed (Blair Loy

1999:1347). Her aim is to study full careers within the time and historical context that they unfold. By studying the real time in which the careers unfold, she is able to determine specific social and legal changes concerning women's employment rights in the early 1970's that the group of women have been able to exploit to their own advantage. She notes that such changes have changed the women's expectations about pending obstacles they assume to meet in their careers and argues that historical events have the ability to abrupt social structures (Blair-Loy 1999:1389).

Blair-Loy concludes that the women's careers fall into four different kinds of patterns: the corporate climbers, the big fish in small-medium-sized organizations, the movers and shakers, and the entrepreneurs. Almost half of the studied women fall into cluster one, 'the corporate climbers'. These women tend to move steadily up career ladders in large companies with only one or two job shifts (Blair-Loy 1999:1362). Blair-Loy argues that such patterns indicate ILMs, as the women have largely advanced within the same company. 'The big fish in small-medium-sized organisations' work in smaller organizations, but their careers hold more job shifts than the corporate climbers and some even began their careers in non-finance-related fields. 'Movers and shakers', on the other hand, hold many job shifts and tend to advance in both small and large organisations. They have the least organized careers and many have even jumped several position levels. According to Blair-Loy, they may have used their moves between companies to create advantage and have been able to advance to high-level positions in large companies (Blair-Loy 1999:1359). She argues that many job shifts are due to environmental turbulence such as mergers and acquisitions or uncertainty in the finance labour market or because of geographical limits such as relocating because of a spouse's career. These factors were not observed to the same degree in the first two clusters as they were in 'the movers and shakers'. The last cluster: the entrepreneurs, refers to women starting their own business. In sum, she finds that her group of women follow four clear trajectories shaped by both organisational and occupational structures.

What I found particularly interesting about Blair-Loy's piece is that she studies complete and intact careers over time. Studying intact careers gives Blair-Loy clear and concrete results about a specific non-random group of successful women and their career paths, and this gives me relevant methods for studying Danish CFOs. By applying the same method I can generate knowledge about occupational backgrounds and career trajectories, and it enables me to gain a general understanding of how a specific group of women have advanced to the top level. Additionally, I am interested in investigating whether the same trajectories can be observed in a Danish context. Also relevant for my study is Blair-Loy's focus on gender-dominated industries.

She argues that most studies do not consider the relevance of male-dominated vs. female-dominated industries. This is an interesting observation, because drawing on earlier writings (Kanter 1977, Morrison et al. 1987, Hagen et al. 1998, Blair-Loy 2001, Eagly et al. 2007, Briscoe et al. 2014). I expect that many of the barriers that women face in their careers lie in such structures. Blair-Loy argues: *"We might expect more resistance to women's advancement in finance-related executive positions than in occupations that men are abandoning*"(Blair-Loy 1999:1350). This argument leads her to her focus on an *extreme case* (Blair-Loy 1999:1351) consisting of women that are at the extreme end of the distribution of employed women: the successful women working in a male-dominated industry. Blair-Loy's choice of case is interesting because these women are both rich in resources and face tough structural barriers. This means that her case cannot make broad justifications about all employed women, yet it can say something about extreme cases, namely women in high-level positions in male-dominated industries. The same reasoning applies for my study of executive women in finance.

4.3 Homophily

Researchers have found strong evidence of formal and informal relationships' implications for promotion and advancement within firms. Many have argued that women tend to have limited access to these types of social networks because of highly sex-segregated work places (Hagen et al. 1998, Blair-Loy 2001, Eagly et al. 2007, Briscoe et al. 2014). For example in executive management suites men tend to have networks consisting of dominantly their own gender especially in male-dominated industries, while women tend to have more heterophilous networks. This pattern becomes even more significant in studies of mentoring and career support (McPherson et al. 2001:424). Researchers have explained this phenomenon by using the concept of homophily, which argues that people tend to associate with people who are more like themselves in terms of gender and race (Briscoe et al. 2014, McPherson et al. 2001). The concept of homophily does not depict workplace discrimination, but rather that people are generally drawn to other people whose personal attributes resemble their own. In this way, similarity breeds connection. Homophily is defined as *"[…] the principle that a contact between similar people occurs at a higher rate than among dissimilar people"* (McPherson et al. 2001:416). The principle notes that the more similar two people are the higher is the chance of them enjoying the same network regardless of the geographical distance between them. Homophily notes that relationships and personal networks are homogeneous with regard to many socio-demographic, cultural, behavioural and personal characteristics. McPherson et al. explains*: "Homophily implies that distance*

in terms of social characteristics translates into network distance, the number of relationships through which a piece of information must travel to connect two individuals" (McPherson et al. 2001:416). The more alike two people are in terms of social characteristics, the faster information travels between them. So if two people hypothetically enjoy all the same social attributes and no differences whatsoever are observed between them, then information is shared directly between these two individuals. In this regard McPherson et al. argues that homophily limits people's social worlds because it has powerful implications for the information people receive (McPherson et al. 2001:415).

When it comes to studying how well connected people are, researchers have studied close types of relationships like marriage and strong types of relationships such as people discussing important matters with each other. Researchers have also investigated weaker types of relationships like "knowing of someone" and relationships that involve mentoring and career support (McPherson et al. 2001:418). A popular measure of homophily is to look at deviations from the 'normal' (Carrington 2016:1). If for example a group of people consisted of half men and half women, we would expect a network within that group to consist of the same amount of women and men. This situation is often referred to as baseline homophily: the expected level of homophily when looking at the population (McPherson et al. 2001:419, Kossinets et al. 2009:407). Consequently we would expect male homophilous networks in male-dominated industries, and women working in such industries enjoying more heterogeneous networks (Carrington 2016:2).

Another distinction is inbreeding homophily. This is when people associate more than what we would expect them to (Carrington 2016:2, Kossinets et al. 2009:407). Inbreeding occurs when association exceeds baseline homophily. Additionally, McPherson et al. notes that inbreeding homophily occurs more often between people with same occupations within organisations and that there is evidence of stronger homophily the further up in the organisational hierarchy those people are (McPherson et al. 2001:434). Preferences for similarity is not necessarily based on conscious choices, but can be based on more unconscious selection such as being attracted to or perceiving similar people as more trustworthy than non-similar people (Carrington 2016:2).

Another distinction refers to induced homophily or structured homophily (Kossinets et al. 2009:407, Carrington 2016:2). This means that people are subject to certain structures or structural constraints that guides certain behaviour. What seems like a choice to some people may never be a choice to others because they are subject to structural constraints. Kossinets et al. uses the example of Ivy League school to explain this distinction (Kossinets et al. 2009:408): for some

people going to an Ivy League-school is purely an individual choice, while others will never be given such a choice. This type of homophily deals with the opportunity structures of individuals (Carrington 2016:2). In this regard, structures expand or limit individuals' opportunities that in turn create specific association and networks. Gaining a prestigious educational degree from Ivy League-schools open doors to other individuals in the same environments, while restricting the access to only similar people. This is also what McPherson et al. refers to as organizational foci: *"[…] focused activity put people into contact with one another to foster the formation of personal networks"* (McPherson et al. 2001:431). Consequently, people with similar backgrounds and abilities are grouped into the same classes and permit the formation of network ties.

The concept of homophily is relevant to the study of women CFOs because the women work in a male-dominated industry. In terms of gender they do not belong to the dominant type, the white man, in the industry. In the analysis I will study how of the principle of homophily affects the women's career advancements due to the preference for association with the same gender. I will generate knowledge about how similar this group of women are and seek to investigate how well linked they are.

4.4 Chapter Summary

Summing up for now, finance professionals in general have increased their influence in companies and have experienced an increase in demand for their competences as a result of financialization and shareholder-value as a new form of corporate governance. Simultaneously this trend has increased the demand for such knowledge in executive management positions and has triggered a triumph for the CFO who now enjoys new and more strategic responsibilities, securely placing the CFO second to the CEO. Interestingly, more women are now taking on these positions, but few researchers have sought to study this development. The scholar who comes closest to the aim of this paper is Blair-Loy (1999). She concludes that successful female finances executives follow clear career trajectories rather than coincidental career paths. This is interesting, because in male-dominated industries women usually face barriers to advancement because of the principle of homophily, people's preference for association with the same gender. This questions whether my group of women also follow clear career trajectories and how barriers to advancement can be observed in their careers.

Chapter 5: Philosophy of Science

This section will give a thorough explanation of the methodological approaches to my research. I wish to frame how knowledge is to be understood and analysed in my study. In the following, I will argue for an interpretivist epistemological stance and a constructionist ontological position. The methodological considerations depart mainly from the decision to generate understandings of patterns and behaviour in careers rather than an attempt to uncover an explanation or a definite truth about the rise of the female CFO.

Epistemology concerns the question of how knowledge is produced and what the researcher regards as acceptable knowledge. A decision about epistemological stances often reflects the researcher's aim to explain or understand human behaviour (Bryman et al. 2015:28). Positivist set out to explain human behaviour by calculating and measuring social life (Abbott 2004:43). This is made possible because they see the world as it is, independently of the context surrounding it and individuals' different experiences of it (Moses et al. 2007:11). However, I will take an interpretivist stance to my study since supporters are concerned with understanding human behaviour rather than measuring and calculating the underlying forces that produces behaviour (Bryman et al 2015:28). Constructionist attribute more meaning to social action because they believe that human beings act on the basis of how they interpret the social world and what meaning they attribute it rather than viewing it as something set and external (Abbott 2004:45). I will in my analysis attempt to interpret social action, an interpretation of career trajectories. I will set out to understand my group of women CFOs' career trajectories rather than trying to explain them. I will do so by studying career patterns and regularities across time and space. I do not attempt to measure and calculate social life, even though my empirics are more quantitative rather than qualitative. I merely propose a different approach to the study of GCs. SA will be the preferred choice of method for the study of careers and will be dealt with in more detail in chapter 6.3. Here it is important to note, that the method enable the study of patterns of behaviour rather than the explanation of their occurrence.

Ontology concerns our perceptions of the social world. The central question here is whether the social world exists independent of social actors or whether it should be understood as a social construction built from the perceptions and actions of social actors (Bryman et al. 2015:22). This thesis will take its point of departure from constructionism because it closely follows the views within interpretivism. According to constructionism, the social world depends on the eyes of the observer and the social forces that produce it (Moses et al. 2007:12). It recognises that both the individual and the society has the ability to construct patterns and does

not view organisations and institutions as something that exists externally to the individuals who occupy them (Bryman et al. 2015:22). Such a stance works well in the study of careers because it recognises that individuals are intelligent human beings able to make their own career choices, while recognising that social structures also have the ability to directly or indirectly impact these choices. In this view, individuals have at least to some degree the ability to shape their own careers. I recognise that career decisions are often a product of previous career steps or individual choices, that individual' plans for the future reflect not only their immediate state, but also their experiences in the past (Abbott 1999:147). However, I also acknowledge that outside forces has the ability to limit or expand individuals' opportunity structures. The example concerning Ivy League schools refereed to in the section on homophily demonstrates this. Drawing on constructionism, individuals do have the ability to shape their own careers to some degree, but not everyone can make the choice of going to an Ivy League school, other forces are at play here. The same goes for corporate cultures and norms. Following a constructionist stance, these are not given, viewed as objects external to the social actors but can be revised and revoked (Bryman et al. 2015:23). In the same fashion, rules and norms can be rigorously or less rigorously imposed depending on the social actor in question. This ontological stance do accept that individuals face constraints in their social worlds, but rather than viewing them as given they assume that they are socially constructed (Bryman et al. 2015:23).

5.1 Research Strategy

I will apply an abductive research approach to my analysis and draw on earlier findings within the GC literature to complement my own empirical findings. I will use abductive reasoning to make logical inferences about patterns across time and space in the attempt to single out the 'best' explanation based on my empirical findings and previous conducted research about the phenomena (Bryman et al. 2015:27). By doing so I will operate back-and-forth between empirics and already developed theories and consequently allow for the possibility of being surprised by my findings (Bryman et al. 2015:27). In practice, I start off describing my empirical findings and see how earlier findings uphold in my case or not. The methods applied in this thesis will be more quantitative rather than qualitative in character, but I will only attempt to understand the rise of the female CFO rather than trying to explain it. Even though I bring the women's careers to the foreground I accept that there I things bigger than my unit of analysis and that structures and context impact their careers. Earlier research about structures is important to arrive at a persuasive understanding of their careers. An abductive research strategy usually starts

with a puzzle which existing theory or literature cannot adequately explain (Bryman et al. 2015.27). I was particularly puzzled by the fact that 55 female executives had been able to climb company ladders despite possible structural barriers to advancement and within a male-dominated industry. As were thoroughly explained in chapter 2, former research within the GC literature does not adequately explain women who are able to navigate around these barriers and reach executive level. When applying an abductive research strategy, the researcher usually seeks to identify factors and conditions that would make the puzzle less puzzling (Bryman et al. 2015:27) and in my thesis I will apply methods that can uncover trajectories in individual occupational histories in order to understand the rise of the female CFO.

Abductive reasoning works will with both interpretivism and constructionism because it recognises that people experience the social world differently and attribute different meanings to it (Bryman et al. 2015:27). Furthermore, when applying an abductive approach it is important that the researcher strive to uphold a continuous dialogue between ones pre-understandings of the issue at hand and the collected data (Bryman et al. 2015:27). Such considerations are presented in the following chapter.

Chapter 6: Research Design and Methods

Decisions about research methods is usually derived from asking a typical set of questions; how to propose a research question, how to design a research study, how to acquire and analyse data (Abbott 2004:13). The following will explain considerations in terms of such questions, introduce clarifications about data selection and criteria and lastly go into greater depth with the preferred choice of method for this thesis; SA.

6.1 Data

This section outlines primary data selection and criteria for my thesis. Specifically I will explain on what grounds my study sample consisting of 55 women was chosen, and how data about their careers was obtained, together with considerations about the validity and limitations of such data.

Selection and Criteria

My study sample consists of a total of 55 women CFOs or former CFOs in top Danish companies. This makes all the women included in my study high-ranking finance professionals employed in executive positions with large degrees of variation in terms of type of company and

industry. The data was dominantly collected in December 2015 and a full list of all women CFOs can be found in the appendix A.

Guld1000

40/55 women were identified using the popular list "Guld1000" that ranks Denmark's top1000 companies according to turnover (Guld1000). The study of large companies was particularly interesting because I assume that it is more difficult to reach an executive management level the larger the company is because both responsibilities and pay checks increases. So, the larger the company size the more recognised your competences and expertise is. My initial thought was to include all women CFOs from all 1000 companies, however it was not possible to obtain information about names of residing CFOs via Guld1000 without paying for it. I reached out to large PSFs like Deloitte and EY who have recently conducted studies on Danish CFOs to explore the availability of such information. On both occasions this type of information was held confidential, and I understood that I had to gather the information own my own. It did not take long for me to realize that time restrictions made a study of all 1000 companies impossible. For this reason, I chose to focus on the top500 companies, manually investigating all companies and identifying the name and gender of the residing CFO. While investigating the top500 companies it was clear that many women CFOs actually resided in the top of the list rather than at lower rankings.

All top500 companies were investigated thoroughly in order to identify the woman or man in charge. If that information was not available either on company webpages or organisational charts, thorough research was conducted via Google research. I always checked for updates on webpages to make sure I obtained the most recent information about the residing CFO, and if I was ever in doubt I cross-referenced information with LinkedIn or other updated sources like the most recent newspaper articles. The reference list clearly specifies the webpages where information was gathered. When information was not available online, I reached out to the companies. My strategy was as follows: I first reached out via e-mail. With no reply, I sent a follow-up email. If this was also unsuccessful, I tried calling the companies. Some companies did not want to give up employee information, other companies did not display contact details, and in some cases where details were available, e-mails and phone calls were not returned. Please turn to data on enclosed USB for specific information on what companies were left out of the analysis due to unavailable information.

Many companies reported back that they did not have a CFO employed. The main reason for this was because the company was a holding company. This was for example the case of Interdan Holding A/S and for the well-renowned clothing company H&M. Although they are ranked on the Guld1000 list, the company reported that their Danish division was only viewed as a sales-distribution unit and did not have an independent finance unit associated, so a CFO from H&M was left out. Some companies reported back that the CEO was also regarded as the CFO. If this was the case the CEO was regarded as the CFO and I took the CEO into consideration, if this was a woman. At the time of research this was for example the case with Pernille Erenbjerg TDC who is included in the study. However, since then the company has hired a male CFO. Nonetheless such a decision only strengthens my study because it allows for the exploration of women who have been promoted from CFO to CEO.

The companies that were without a CFO at the time I conducted my research could not be included in the study. This was the case with Parken A/S and Adecco. Annette S Nielsen from Leo Pharma has since my research left the company, but is still included in the study. It is important to note that my study gives an immediate portrait of all women CFOs serving in January 2016. This produces some limitations for making generalisations because some women might have changed positions or new women might have advanced to CFO since I conducted my research, whose career choices could be significantly different from my group of women. However, I do believe that my findings show clear career patterns enabling me to answer the research questions even though changes to positions have occurred since the time of research.

Other issues arose in the process of selecting my group of women, particularly in terms of titles. CFO is generally an American term describing the top head of finance in a company. I came across that many of the largest companies used such a title, but as I went through the Guld1000 list and arrived at lower rankings, the term CFO was less used to describe the top head of finance. In many cases the Danish title "Regnskabschef" was used. This position does not necessarily refer to an executive management position, although it may be an executive management position in some companies. It was usually not evident from the title alone whether the person could be characterised as CFO. To address this problem, I thoroughly researched who was the top head of finance in the company using organisational charts, reaching out to companies or by cross-referencing with LinkedIn where many of the women have typed job titles in English, and this gave a clearer indication of the person's ranking. In some cases it became obvious that there was a person with the title "Økonomidirektør" that was of higher ranking than "Regnskabschef", thus "Økonomidirektør" was decided as identical to CFO. On other occasions

the top head of finance was a person with the title "chief controller", based on thorough investigation and as I generated more knowledge about positions in companies, it was decided that "Chief controller" was not identical to the position of the CFO. Many of the women who had advanced to CFO had held former positions as "Chief Controller" and it became apparent that "chief controller" was not an executive management position. "Regnskabschef" was trickier. Luckily only a few women who held this title and appeared to be top head of finance in their respective companies, so they were all contacted in order to clarify whether they would regard themselves as the "CFO" of the company. In most cases the company reported back that the CEO was in charge of finances, and the women were then disregarded and did not qualify for my study. This was for example the case with companies like NCC Roads and M.J. Eriksson Holding. The disadvantage of taking such a decision is that it leaves out some women that might have either shared or had significantly different careers from my group of women. However, the focus of study is the women finance executives and my ability to discuss these women's implications for breaking GCs depend on the selection of only women having advanced beyond GCs and I decided that only women occupying executive position was regarded as such.

Another problem was the characterization of a top company. As mentioned the companies on Guld1000 list is only ranked according to turnover, even though it includes information about amount of employees (Guld1000). Many of the companies was Holding companies and had either very few or no employees. These companies were problematic as my focus of the thesis was on leadership positions. Experience with management is necessary to rise in organisational levels. As I will explain in more detail in chapter 7.2, positions are usually defined according to the degree of not only responsibilities but also the number of people you manage. The higher up in the organisational hierarchy you move, the more people you manage and the more people you have employed below you. Therefore companies with no employees made little sense to include. This made me decide on a threshold that companies, as a minimum needed 100 employees to be included in the study and perceived as a large company. The threshold could certainly have been set higher, however as the focus is on the role of the CFO, the top head of finance in a company, I chose to lay more weight to 'turnover' than 'employees' when deciding what top companies to include.

It is important to mention that I explored all holding companies in greater depth than other companies. As these companies are usually large in turnover and low in number of employees, I chose to explore their subsidiaries as well if these were Danish-controlled. This was for example the case with Alfa Laval. In this case the company contact person informed me that

each subsidiary had its own CFO and no CFO was associated to the parent company. If a company had a group CFO employed, then the subsidiaries were not researched. However in large companies like Maersk, I chose to include their CFOs for their divisions or sub-companies as well. These companies act as independent business unit, so it makes sense to treat them as such in the study. Consequently Marianne Sørensen CFO in Maersk Drilling, Anne Rømer from DFDS Logistics, Gitte Aggerholm Nordea Liv & Pension and Marianne Rørslev Bock from Brd. Hartmann owned by Thornico were selected for the study.

Media

Above I have explained how 40/55 women were chosen from the popular list Guld1000. The remaining 15 women were obtained using other selection criteria. I quickly found that many of the successful businesswomen mentioned in media are presently or have previously served as CFOs, and not all of these women could be found on the top500 list. It was interesting to include these women, not only to increase my study sample, but because of the large media attention directed at them. One must assume that media attention is a result of recognisable CFO work and so I found it relevant to include these women to see if they resembled and followed the same patterns of the chosen women from the Guld1000 list. To research the media covered women, I first reached out to the journalist and author of the Berlingske article from 2012 that was the first to touch upon 'the rise of female CFO' in a Danish context (Erhardtsen 2012, Appendix M). If these women were presently employed or previously employed in a top500 company then they were included in my sample. This included Lene Skole, currently serving as CEO of Lundbeckfonden and former CFO at Coloplast; Sisse Fjeldsted Rasmussen, currently serving as CFO at Nordic Tankers and former CFO at Scandinavian Tobacco Group; Anne Broeng who is currently working full time as a professional board member and is the former CFO of PFA.

Other lists were interesting for my study and were explored in order to find additional recognised women CFOs. One of these lists is "Women on Board", a list developed by the organization Confederation of Danish Industry. It is a database that provides companies with competent female board candidates in an attempt to bridge GCs in boardrooms. Women have been selected based on qualifications wherefore I assume that the list acts as stamp of approval. I searched the database for women with "CFO" or "Økonomidirektør" titles. Many of the already chosen women for my study were on the list, in fact only Mette Søvndahl Petersen CFO of Estee Lauder Cosmetics was added to my study with this research method.

I also explored another list, or network: the prominent "VL-grupper". VL is short for 'Virksomhedsledere' translated into English as 'Business Leaders'. It was established in 1965 and is a network where business leaders meet in different groups to discuss experiences and exchange best practices. This network is considered significantly powerful in Denmark, and it represents a stamp of approval of leadership skills. I searched their database for women with 'CFO' or 'Økonomidirektør' titles and eight more women were added to the list. It struck me that, many of these women cannot be found in the top500 or the Guld1000 list because they are working at small-medium-sized companies. I will touch upon this finding in the analysis. As the "VL-grupper" network includes Denmark's most powerful business leaders all women with head of finance responsibilities were included no matter their ranking on the Guld1000 list. Therefore, the following were added to my study: Inge Harting Bodskov CFO Loxam; Pernille Fabricius former CFO, now independent industrial advisor; Mai Vedel CFO at BIMCO; Maria Sørensen CFO at Arctic Group; Heidi Thousgaard Jørgensen CFO at Union Engineering A/S; Lene Hall CFO at RMIG; Lisbeth Dau CFO at Rosendahl Design Group; and Elsa Lund-Larsen CFO at SIMAC was selected for my study. This meant that I arrived at a complete study sample consisting of a total of 55 women CFOs.

Acquiring Data

CVs

Information about the 55 women's careers was collected from publicly available information and my primary source was LinkedIn. This source helped me uncover the women's CVs and I recorded their names, age, residence, education and their entire employment history in terms of all previously held positions, job shifts, initial and terminal dates, industry, organization name and size. All women were included no matter how much information I was able to obtain (Please turn to data on enclosed USB for more information).

Since LinkedIn profiles are personal I assume that the women fill out their profiles themselves. This gives my primary data high validity. The downside was that not all profiles were as detailed or included all the necessary information. Therefore it was important to complement the LinkedIn data with other sources. Additional sources included company press releases, company webpages and newspaper articles (Please see 'References for CFOs' for further information). In some cases it was possible to obtain information about positions but not how many years that person had held each position. For example, a woman had held two positions within the time period 1985-1995, so to address the issue half of the period was assigned to each

of the positions. In this particular case I recorded 5 years to the first part and five to the next. This was only the case with two positions though and will not significantly affect my results.

Blair-Loy's study on women finance executive was based on surveys where all women filled out detailed questionnaires about their careers (1999). This method streamlines the data to a greater extent than using LinkedIn profiles, because the researcher asks all participants the same information. This allows the researcher to obtain the exact same information, understood in precisely the same way for all women. This particularly deems relevant concerning classification of the women's positions into categories of position levels. If the scope and time frame of this thesis had allowed for it, sending the women questionnaires would have given the women the possibility to pinpoint their perceived level of responsibility in former positions. This may have strengthened my results, but I do believe I obtained the necessary information needed to make such decisions based on my research. I argue that clear patterns and occupational hierarchies concerning job titles can be observed in my group of women. Please turn to chapter 7.2. for more information.

Surveys

To complement the SA findings, I found it interesting to study whether the women could be characterised as the new PCFO and whether the women knew each other. All 55 women were sent surveys asking four rather simple questions presented in two parts. First part concerned their CFO responsibilities and second part aimed at investigating the principle of homophily. 40 women replied in total. All these women answered the first two questions concerning CFO tasks, while far less chose to answer the second part of the survey concerning homophily. The two parts together with limitations and validity will be dealt with in the following.

In the theoretical framework I have explained how finance and the CFO have increased in power. As I have argued, the PCFO is usually second to the CEO taking part in long-term strategic decision-making. It was interesting to study whether my group of women shared the traits of the PCFO, because it indicates to some degree how high they rank in their respective companies. Whether they are taking part in shareholder meetings, advising and reporting directly to the CEO on financial matters or merely deals with classical tasks like bookkeeping and compliance measures. In doing so, I am studying the connections between the PCFO and the executive women's implications for breaking GCs. No other study has attempted to investigate such an association, and it did prove difficult: Firstly, the women's responses were treated anonymously and this made it impossible to make direct links between who answered what and

their results in the SA. As with all cross-sectional research it is only possible to produce associations rather than causal interferences (Bryman et al 2015:58). However, the confidentiality issue constrained my ability to produce direct associations. Consequently, the results from the first two questions will be used to make indications about the total sample, whether they in terms of responsibilities can be classified as PCFOs and whether they add significance to such tasks. I asked the women to rate common CFO task. These included both classical tasks like book keeping and new PCFO tasks that are more strategically oriented. I asked two questions "What do you spend most of your time on" and "What do you consider most important". I organised the CFO responsibilities into 7 categories based on knowledge generated from articles and reports done by PwC and Deloitte (Larsen 2015, Fabech 2015, Bishop et al. 2015, Jensby 2015): Strategic Finance, Operational Finance, Business Finance, Specialized Finance, Process and Policy, Organisation and People and Information and System. The categories are explained and presented in appendix B1, as they were presented to all women. Appendix B also holds survey results for all four questions.

The second part of the survey concerned the principle of homophily. It was interesting to study connections among the group of women, as the principle states that people with similar characteristics tend to associate. The degrees of homophily was investigated by listing all 55 women in the survey and asking the women to first check the women that they knew, and next the women that they discussed important matters with. Seven women skipped the first question while 16 skipped the second question. This not only suggest that the women considered such questions a private matter even though they were assured anonymity, but it also implies network affiliations within my group of women based on the argument that if no association was observed then the women would not find it problematic to answer this part.

Taking a constructionist approach to my research, I recognise that not all questions may be understood in the same way, and this can produce some limitations to my study. For example the question of "Do you know any of the following women" caused some difficulties. This question can both be understood as "do you know of" or "do you know". The first aims at 'knowing of someone': the woman might have heard about the CFO in media, but never actually met in person, where the second suggests a relationship. This issue somewhat constrains my findings in the second part of the survey. In the first part of the survey the responsibilities were specified with examples. In this way, the issue of different understandings is addressed and the results strengthened.

6.2 Sequence Analysis

In the following I will introduce the main choice of method, namely SA. I will discuss the strengths and weaknesses related to the method. It was of utmost importance to me that the choice of method would allow me to study the women executive's careers directly and entirely. The method had to be able to take large and complex information about a non-random sample into consideration. Furthermore, the method had to allow for the study of all different kinds of jobs held across different organisations and industries in order to study whole career paths from beginning to end (starting with the first occupation and ending at the executive management suite). SA is preferable, mainly because it does not limit or reduce the women's careers, but treat them holistically (Pollock 2007:169) and provides the researcher with an exploratory tool to study similarities within the sample. Until now, there have been no attempts to study women executives in a Danish context using SA.

SA was adopted by social scientist in the mid 1980s from computer science and genetics in the 1980's mainly used to compare DNA sequences and to assess their degree of dissimilarity (Blanchard 2011:4). It was first applied in social sciences to the study of German 18th century musicians careers (Abbott 1990) and has later been applied to study the rise of transnational welfare systems (Abbott et al. 1992), the use of external consultants in international financial surveillance (Seabrooke et al 2015) and most central to the aim of this paper; female finance executives (Blair-Loy 1999). Today SA is applied in history, geography, anthropology and political science and can be used to study family lifecycles, cultural rituals, steps in a dance, but is in social science most popular for the study of professional careers (Blanchard 2011:6). The level of analysis can be both the individual, groups of people, organisations or institutions. Political scientist have for example been interested in elected politicians by studying mandates (individual level), trade unions by studying their public agendas (organisational level) or by studying macro perspectives (state level) and transnational contexts (Blanchard 2011:6).

The method provides for an exploratory typology development as opposed to more statistical variable-based causal models (Pollock 2007:169). A major strength of this method is its holistic approach and its ability to treat sequences as whole and unique rather than individual data points (Blair-Loy 1999:1352, Abbott et al 2000:4). This also means that SA is one-dimensional in character and as a result, descriptive. It does not split the data into dependent and independent factors, rather offers a technique to study patterns within data (Blanchard 2013:85). It provides a method to process sequence data, data that is defined as a series of events or a succession of

elements that we expect to follow a specific order (Gabadinho et al 2011: 10, Abbott 1995:194). Consequently it allows for an analysis that includes the temporal context.

In social sciences its application differs from its use in computer science and genetics, firstly because its sequences are shorter in comparison to DNA sequences for example (Blanchard 2011:4). Secondly, the application of SA in social sciences is more complex, because social scientists tend to base their results far more on interpretations (as opposed to positivism). Social scientists do not hypothesise about objective underlying sequences rather they believe that: *"[…] social or political trajectories are made of continuities and changes that depend on a complex mix of decisions and constraints, although some structural factors influence them"* (Blanchard 2011:4). This method works well when taking a constructionist analysis approach because the rationality of SA is both objective and subjective (Abbott 1999:149, Blanchard 2011:3, Blanchard 2013:87). We expect sequences to be driven and influenced both by social norms, institutions and networks as well as individual aspirations and plans for the future. Only by studying sequences directly can we generate knowledge about such forces. The temporal context of SA deems important because it recognises the embedded context of the women's careers.

Studying sequences directly often limits the data size because the method requires dyadic data (Abbott 1999:1777), data that is composed of couples of states. This not only makes coding a major time consuming task, but also triggers important decisions about which states and how many to include. Number of states and number of state-categories, also referred to, as alphabets should be reasonable compared to the number of N sequences in order to avoid too many unique cases (Blanchard 2011:7). The number of total sequences should be relatively low, but still big enough to justify similarities between sequences. They do not have to be of the same length, but should always occur within the same temporal context. Sequences and events can be unique or they can repeat (Abbott 1995:95). Events within a sequence can depend or the previous event (Gabadinho et al 2011). The steps you take in a manufacturing process can depend on the step you took prior to being able to take the next one, and there can be sequences where one specific event prevents the occurrence of others (Abbott 1995:95). What is important to note, is that a sequence should only resemble the reality. This means that sequences are finite, and the size of a sequence will be determined by the events that actually occur. This does not mean that sequences have limits to their lengths but that their lengths *"[…] are typically set by some sampling frame – a lifetime, a wave of data collection of something similar"* (Abbott 1995:95).

SA comes with a set of tools for coding, comparison, clustering and to represent the sequences in graphical forms. Blanchard notes that SA generally follows five steps (Blanchard

2011:1). The first is to describe and present the sequences. This step often makes use alphanumeric codes to observe and investigate selected states. These can for example be positions held. It is of course important that all sequences are described in the same fashion in order to generate understanding of the trajectories of the whole sample. Consider the following simple example of a person moving between unemployment (U), Manager (M), Chief of Department (CD) positions: U→U→M→M→M→CD. This person was unemployed for two years, was then manager for three years and finally got promoted to a Chief of Department position. I use a retro perspective longitudinal self-administered approach to coding (Blanchard 2011, Gabadinho et al 2011:28). Longitudinal approaches are usually of preference when the researcher wishes to study processes through which changes are created (Bryman et al. 2015: 60). Coding is a major time consuming task and must be handled with care (Abbott 1999:158). It is important that no blank codes remain in the data set, where information is unavailable that should be recorded accordingly (Blanchard et al 2013:84). Coding decisions shape the input to SA irrevocably (Abbott et al 2000:8). Especially in cases where a complex and a large amount of information are available, the decisions about coding, practically what to include and what not to include is essential for the analysis. What is observed in a sequence of events varies greatly in studies. The researcher can choose to focus on different variables in order to unveil different kinds of patterns; educational degrees, unemployment, position levels etc., but also the amount of variables vary. Most social science researchers have only used one or two variables, and few have attempted to conduct multichannel sequence analyses (Pollock 2007, Blanchard 2011, Blanchard et al 2013). Blair-Loy (1999) only focuses on position levels and organisation sizes and disregards other variables. I argue that position levels, organisation size as well as industry will affect women carers. This will enable an exploration of career trajectories and the importance of for example starting out in a large company in order to end up in one, and whether female-dominated or male-dominated industries affect women's career paths. Coding decisions will be explained in detail in chapter 7.2.

The second step is to classify the sequences and asks a body of questions like what groups emerge and what factors form structure (Abbott 1995:93, Blanchard 2011:3). For this step Optimal Matching Analysis (OM) is often a preferred choice of method. It provides the researcher with a tool to measure similarities and differences within a sample and will be dealt with in more detail in the following subchapter. The third step is what Blanchard refers to as "Sequence Mining" and is the study of patterns, within sequences or over the whole sequence (Blanchard 2011:3, Abbott 1995:105). This step sets out to study whether a series of events

happens in a particular order. For example what is the most common career path for CFOs across organisations before reaching executive level. The fourth step involves studying patterns among groups and asking questions like does people use different means of transportation depending on the respective month (Blanchard 2011:3). This step sets out to study *change* for example at what moment do the people change transportation mean (Seabrooke 2016).

The fifth and final step is the study of trajectories. Many researchers have investigated the causal relationship between external variables and clusters of similar trajectories like in the case of Blair –Loy (1999) who seeks to study the relationship between legal changes concerning women's employments rights in the early 1970's and her clusters. A study of association is conducted because researchers assume that sequences do not unfold independently of the surrounding social context in which they exist (Blanchard 2011:6). Relationships can also be studied within the sequence instead of looking at external variables, for example studying links between educational degree held and the number of years being unemployed or the impact size of organisation have on career pace and the chance of success (Blair-Loy 1999). Consequently, SA is an exploratory tool to first study meaning within the data, but must also rely on external knowledge of the data to make adequate conclusions about trajectories (Blanchard 2007:168).

6.3 Optimal Matching

Optimal matching has proven a relevant method when studying careers (Abbott et al 2000, Blanchard 2011, Blanchard et al 2013). This technique is used to reveal patterns in the sequences. This method continues to treat the sequences as whole and unique, but offers a clustering technique of the sequences. As will be shown, there are many strengths and weaknesses combined with the method that mainly involves the researcher's ability to subjectively estimate the costs of turning one sequence into another.

OM calculates the similarities in the sequences by measuring the distance between sequences, a so-called distance index. (Blanchard 2011:9, Gabadinho et al 2011:14). It measures how much it costs to turn one sequence into another. Blair-Loy explains: *"This method uses a metric to develop a measure of distance between the strings of events. Each pair of sequences has a distance between them that is the minimal sum of the costs of the arithmetic operations required to turn one sequence into the other"* (Blair-Loy 1999:1357). As the distance index determines the similarities between the sequences, OM provides the researcher with an adequate measure of resemblance, which can be used to reveal patterns in the sequences. It is important to note, that OM does not provide a tool for studying the likelihood of one particular sequence, but rather provides a measure of the cheapest

way of transforming one sequence into another (Pollock 2007:171). OM determines similarities by using three different kinds of tools: substitution, insertion and deletion (Blair-Loy 1999, Pollock 2007, Blanchard 2011, Blanchard et al. 2013, Seabrooke 2016) Substitutions costs refer to the act of transforming one event from one sequence into the other. It focuses on which events and how many of them need to be substituted to make two sequences resemble each other. Insertion refers to the act of adding events in order to turn one sequence into another, and deletion refers to the subtracting of events. Turning sequences into resembling each other can be a mix of all three tools. There are of course various ways to turn the two sequences into one another, but the costs should always be the minimum (Abbott 1986:479, Pollock 2007:171, Blanchard 2011:11). Please turn to appendix C for a technical explanation of the OM technique. In this thesis the sequences are run through the programming language R and the TraMineR package with a built-in OM algorithm into the script in order to calculate all possible matches and define the cheapest distance between sequences. Please see appendix L for R script.

The researcher always determines how much substitution and deletion and insertion (indels) should actually "cost". In some cases it might prove more difficult to transform 1 into 4 than 1 into 2. For example it might prove more difficult to jump several position levels than to advance to the next expected hierarchical position (Abbott 1999:155). The costs of transition can be considered as the risks or how much effort that has to be put into transitioning from one state to another. But it should always follow some kind of principle (Seabrooke 2016). Costs are usually determined using one of two approaches; either based on frequency rates about the transitions*: "the more frequent a transition (a move from state a to state b), the lowest its cost*" (Blanchard 2011:10) or deductively, determined by the researcher's knowledge about transitions and by developing a cost matrix (Abbott 1999, Blair-Loy 1999, Pollock 2007, Blanchard 2011, Seabrooke 2016). A deductive approach is usually based on both practical and theoretical assumptions about the sequences. If the researcher is able to set the best set of costs, then the study will also reveal the best set of categorizations (Abbott 1999:155). Blanchard argues that a deductive approach is the most satisfying theoretically, and gives more substantial value to the calculation of distances than an approach based transitions rates (Blanchard 2011:10, Pollock 2007:171). In this regard, I will apply a deductive approach concerning costs developed from my knowledge gathered about the women's career movements. The cost considerations will be presented in chapter 7.3.

Letting the researcher determine the costs of the analysis does provide the researcher with certain kind of power, and it can be argued that in this way the researcher is able to direct the results. Abbott notes: *"transformation costs haunts all optimal matching analyses"* and that is a

common issue for many sociological methods not only limited to OM (Abbott 2000:12). He has in an earlier study argued that calculated costs do not substantially affect the results in OM (Abbott 1999). According to Abbott, substitution costs should always be estimated with caution, but minor differences in costs assignments are unlikely to significantly change results.

When studying careers another issue with sequence analyses arises. On many occasions the sequences studied may not be of identical lengths. Perhaps the samples in the study vary in terms of age (Blanchard 2013:83). Determining a specific sequence length relevant to the study can accommodate this problem. However, this makes it difficult to study entire careers as wholes. OM accommodates this problem by reducing the indels cost to half the cost of substitution, in this way the sequence length will not significantly impact results (Abbott 1999, Blair-Loy 1999, Blanchard 2011, Seabrooke 2016). Since the executive women for my study is expected to not necessarily be of same age, I expect that their career lengths will vary as well. The indel costs will be set so, as the length of their sequences will not significantly impact my results.

6.4 Chapter Summary

This thesis will directly study 55 female CFOs in top Danish companies selected via Børsen's Guld1000 list together with other prominent lists and business leaders networks. The thesis will make use of SA to study my group of women CFOs. SA is quantitative in character, and offers a method to study patterns across time and space while treating my sample consisting of careers as whole and unique. The following analysis will closely follow Blanchard's five steps to SA (2011); descriptive statistics, optimal matching, sequence mining, patterns among groups and studying trajectories.

Chapter 7: Multichannel Sequence Analysis

The following analysis will answer the research question: "How can we understand the increase in women CFOs in top Danish companies and what significance does it have for breaking GCs?" using SA. The analysis will set out to investigate common career patterns in my group of 55 women CFOs. It will follow Blanchard's (2011) steps to SA closely and start off introducing the reader to my group of women and thoroughly explain what constitutes my data. Next I will classify my sequences by applying an OM algorithm. These steps will allow for an exploration of career trajectories. Using SA to answer the research question at hand does not generate significant statistical results that can be used to make broad statistical generalizations

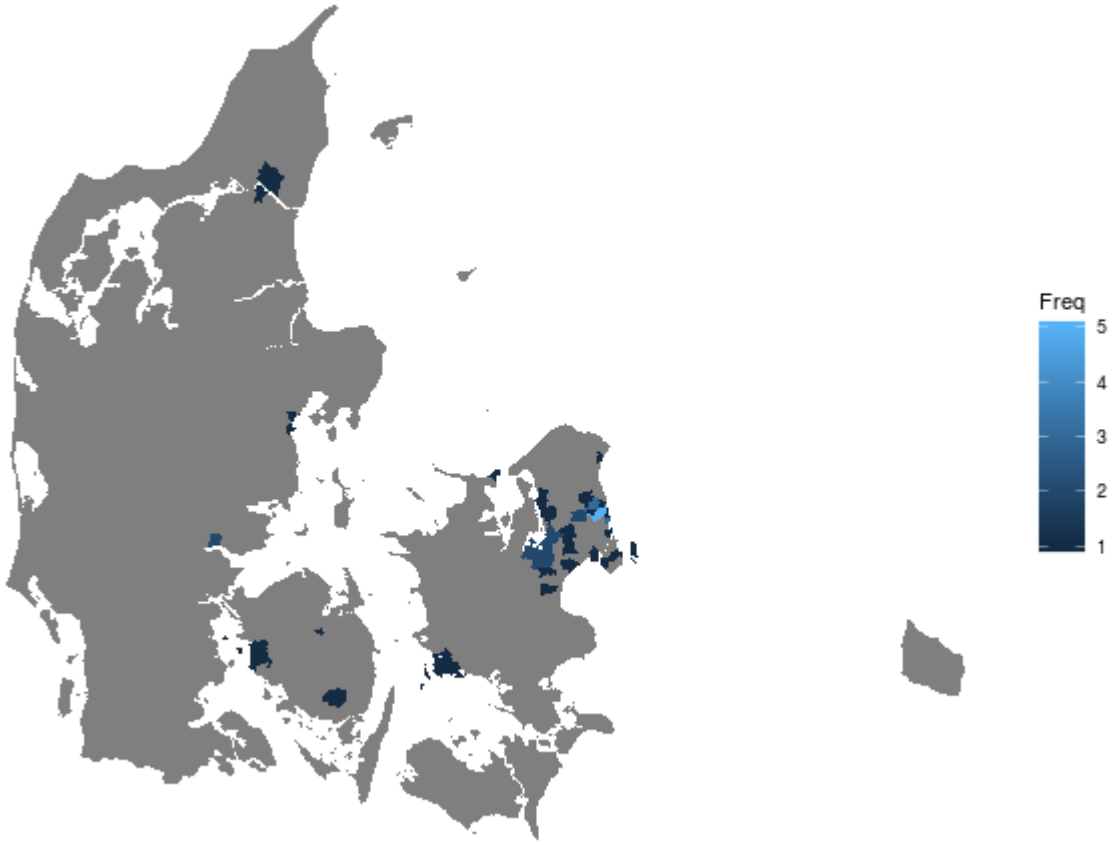
about the public, but it can be used to hypothesise about similar male-dominated industries and women in high-end professions.

7.1 General Observations

The following will present my group of 55 women CFOs, to gain get a better understanding of who the women are. I will introduce general information about the group of women in terms of nationality, age, residence and educational backgrounds.

Data regarding my 55 women was obtained in the months of December 2015 and January 2016. This means that women that have taken on a new position or new women CFOs to other companies employed after January 2016 are not included in the study. Since all of the women are white women working in a male-dominated industry, specifically finance, the findings of this study will only strictly apply to white women CFOs. Four of the women, namely Lonneke Hendrix from Phillips Denmark, Marika Fredriksson form Vestas, Natalie Knight from Arla Foods and Kristin Muri Møller from Telenor have another nationality than Danish, but are still included in the study. Their nationalities are Dutch, Finish, German and Norwegian, in that respective order. I decided that the origin of the company weighed more than the nationality of the CFO. The women are on average 49,5 years of age, and dominantly live north of Copenhagen (See Figure 1). Few women are based in Jutland or Fyn, but these women are located near company headquarters. One woman lives outside of Denmark, namely Pernille Fabricius who currently lives in London. 14 of the women are members of the extinguished "VL-gruppe" and 11 of the women are recorded in the Blue Book, the Danish counterpart to "who's who" for distinguished and influential Danes. Six of the women are members of a committee run by the Confederation of Danish Industry (DI). None of the women serves in the same VL-gruppe or DI committee.

Figure 1: **Map over Denmark**
Women CFOs private residence address (zip code)



Map over Denmark made in R displaying different municipalities by frequency. The figure illustrates that most women live north of the capital Copenhagen.

Five women hold educational backgrounds significantly different from a specialization in finance. These backgrounds include Engineer in the case of Birgitt Aagard Svendsen and Mette Schiolborg, Shipping Assistant in the case of Lene Skole, Programmer in the case of Lizette Kjellerup and Teacher in the case of Ruth Schade. However, all women except Mette Schiolborg have eventually supplied their educational backgrounds with finance-related degrees. Birgitt Aagard-Svendsen, Lene Skole and Ruth Schade received Graduate Diplomas (GD) from Copenhagen Business School. Kjellerup has supplied her education with a Masters degree in Business Administration and Auditing (cand.merc.caud.) from Aarhus Business School. Almost 62% of all the observed women hold both a Bachelor and a Master's degree. The majority of the Master's degrees observed are cand.merc.auds. Mette Barslund holds a Bachelor's degree, but not a Master's degree. She does however hold a Merkonom in Finance and Economics. A GD, for

example, in Financial Management and Auditing is a common observation among the women. 14.5% hold such a degree, and 7,3% hold a Merkonom. It was not possible to gather information about the educational background of three of the women. Eight women were certified State Authorised Public Accountants (SAPA).

Figure 2: **Educational Degrees**

Educational Degree	**Percentage of total sample**
Merkonom	7.3%
Graduate Diploma	34.5%
Master's Degree	61.8%
State Authorised Public Accountant	14.5%
Non-finance related education	9.1%
Not Available	5.4%

Several women hold several educational degrees. Educational degrees obtained at various institutions where Copenhagen Business School and Aarhus School of Business are among the most popular

The women work in a wide range of industries ranging from transport to pharmaceuticals to IT. Transport was the most popular industry (12.7%) followed by IT (10.9%) and Energy (10.9%). All women have a title of "CFO" or a title assumed to be parallel to that of the CFO like "Økonomidirektør". 40 of the women belonged to Group executive management in their respective companies. Most of the remaining women were considered executive managers, but were CFO in either a Danish division part of a larger international company, or simply a division within a Danish company, or a subsidiary owned and controlled by the Danish company. Women in these positions include Anne Rømer from DFDS, Charlotte Schubart from DHL Express Denmark, Gitte Aggerholm from Nordea Liv & Pension, Lonneke Hendrix from Phillips Danmark, Marianne Sørensen from Mærsk Drilling, Mette Schiolborg Statoil Refining Denmark and Mette Søvndal Petersen from Estee Lauder Cosmetics. It was not possible to gather group management information about the remaining seven women.

The women's hierarchical ranking within companies was also explored. This data was gathered by looking at their ranking, visual placing on organisational charts or according to the order they are introduced on company websites. In practice I looked at whether the women are introduced right after the CEO or significantly further down the page. The women that have advanced beyond the position of CFO are ranked first, I observed this in the case of three women; Pernille Erenbjerg from TDC, Lene Skole from Lundbeckfonden and Gitte Aabo from Leo Pharma. 26 women, approximately 50% of the total sample ranks second to the CEO.

14.5% rank third and 4.5% ranks fourth. The outliers include Mai Vedel CFO in BIMCO who ranks 5th and Birthe .H Rask who ranks 11th.

7.2 Constructing Sequences

The first step in SA is coding, in practice what to include and not to include in the researcher's data set. Typically it is dependent on the type of data available. I have used both deductive and inductive approaches to decide on the number of variables to include (Blanchard 2011:10). Deductive was necessary because I base some of my considerations on Blair-Loy's research (1999) and the inductive approach is apparent in my use of independent data explorations to make choices about relevance and frequency. With inspiration from Blanchard (2011, 2013) and Pollock (2007) I decided to conduct a multichannel analysis including three variables: namely position levels, organisation size and type of industry. This will be the first official attempt to do a multichannel SA in a Danish context.

Blair-Loy (1999), like most researchers, only includes two variables (position levels and organisation size) in her analysis (Blanchard 2013:83). I argue that type of industry is necessary to include as well because the selected women are employed in top companies in a wide range of industries. Type of industry appears just as important a variable because industries tend to be highly sex-segregated. Including type of industry as a variable allows me to study whether advancement proves more challenging in some industries than others. Decisions about the specific variables will be dealt with in more detail in the following subsections.

My sequences are observed in years and range from first event occurring in 1975 and all sequences eventually end in 2016. Blair-Loy (1999) defined her first event or sequence start by her subjects' age. As I explored my empirics, I found out that a significant dominant share of the women already embarked on a finance career right after high school graduation (equivalent to Danish "Gymnasium"). For some this was an entry-level position in an accounting firm, for many others this was a tertiary finance-related obtained at a business school. The decision to start with the first event that could be observed after high school for each woman is justifiable, because it was only possible to obtain information about age for approximately half of the total sample (Turn to data on enclosed USB for more information). By placing more weight on the first event observed rather than age, I made sure I included all relevant information about the women independent of whether information about age was available. Drawing from Blanchard (2013:83), I assume all career steps, also the first step, impact career development.

The women's educational degrees did produce some issues. Many of the women hold GDs in financial management. GDs are often paid for by an employer and obtained parallel to employment, and therefore GDs differ from Bachelor and Master's degrees. I decided that if the women have obtained an educational degree, while working fulltime, then the employment would outweigh the educational degree. I based this decision on the fact that GDs most often are paid by the employer, which indicates that the company is willing to invest in the candidate. Some women also pursued educational degrees (while working fulltime) later on in their careers, usually pursuing Master's if the woman only held a GD or MBAs in management courses or more specialized finance. Drawing on Blanchard (2013:85), all women's educational degrees will be complementary information in the cluster analysis, and not directly included in the SA.

Position Levels

All women followed rather orderly careers with upward-looking mobility and somewhat clear attainment status in position levels. This works well with Blanchard's suggestion: *"I suggest that the alphabet be as close as possible to a scale"* (2011:14). States or events are usually coded with letters or digits and an alphabet is the list of all possible states or event observed in the state (Gabadinho et al 2011:26). I decided to include position levels because it offered a good indication of career paths in terms of responsibilities and competences developed (Blair-Loy 1999). Consequently, I view the women's careers as successions of types of jobs held (in terms of position levels) rather than the particular jobs. I studied all women's careers thoroughly to make categorizations about position levels. I based my categories on Blair-Loy's (1999) findings and applied it to a Danish context. The Danish and American company cultures do not strictly resemble each other and Blair-Loy's categories could not directly be transferred to my SA. I explored all women's careers and all job titles held to develop my own categorisations. I organized my position levels into 9 categories based on job titles including student at business school (bs), non-financial job posting (nf), manager (1), a chief position (2), head of departments (3), senior level positions like senior vice president (4), executive management (5), CEO (6) and eventually professional board member (7). See figure 3. The 9 categories proved similar across organisations and industries. This type of coding is somewhat different from Blair-Loy (1999) since her end category is 8, which in her case can be the managing partner of an investment bank or CEO. Some of my women are currently working as professional board members in several organisations, taking this step directly from that of 5 (CFO). It is considered a quite natural career move to after a while "retire" as CEO, but continue to work and use the many years of

experience in directorships positions (Ryan et al. 2005:83). In my study however, it appears that women skip the step of 6 and go directly to 7 from level 5. Different from Blair-Loy's study (1999) I did not choose to code and include a category for women starting their own companies, because this was not the case for any of my women and not relevant for my SA.

Blair-Loy further decided to code for two categories including female-dominated jobs, such as elementary school teacher, or non-finance related jobs that were not male-dominated. In my sample, only one woman in my sample has worked as a teacher (a female-dominated industry), two as an engineer (a male-dominated industry), and a couple of women have worked in communications, which is a more gender-neutral industry. The occurrence of employments in female-dominated industries was not frequent enough that it proved to be relevant for a separate category. However, I did want to pinpoint when the women hold non-finance related positions, like communications, and the impact on advancement of such career moves. I therefore chose to make a distinction between finance related and non-finance related postings. This decision was also made under the assumption that the position of a CFO demands a high level of expertise in finance.

In some cases it proved difficult to classify at what level the women were employed in their career. For example the title of "Finance Director" brought some issues to coding. Finance director was a popular title even though the women were not Finance Directors for the entire company. On many occasions this title was used even though the woman only has responsibility for a specific business unit within the company, like managing the European or African Division. In that case, a job posting was coded 3, rather than 4. The women could then move from Finance Director (3), Europe → Finance Director (4) → CFO (5). The title "Regnskabschef" also proved difficult to place in my categories. Some women advanced directly from "Regnskabschef" to "CFO" and others took the step from "Regnskabschef" to "Økonomidirektør" to CFO. As the last sequence was most frequent, I eventually decided to place "Regnskabschef" at level 3 based on the assumption that there was a significant difference between being "chef" equivalent to chief and "Direktør" equivalent to director.

Figure 3: **Variable Position Levels**

Own categories

Position Level	Definition
bs	**Finance-related Education** Business School
nf	**Nonfinancial-related Position:** Communication, Engineer, unemployed, nonfinancial education
1	**Entry-level Position** Finance Analyst, Financial Manager, Accountant, Economist, Controller
2	**First Position with Management Responsibilities** Chief Controller, Chief Auditor, Chief Economist
3	**Mid-level Position** Head of department, Partner, Vice President
4	**Senior-level Position:** Senior Vice President, Vicedirektør, Regional CFO, Finance Director
5	**Executive Management Position** Group CFO, Executive Vice President, Økonomidirektør, Deputy
6	**Company Top-level:** CEO
7	**Professional Board Member**

Mary Blair-Loy categories

Position Level	Definition
nf	**Nonfinance:** non-female dominated job
fe	**Female-dominated job:** e.g. elementary school teacher)
ps	**Professional full-time student:** such as law or business
4	**Entry-level management trainee or analyst**
5	**First position with significant management responsibilities:** e.g. assistant treasurer in manufacturing company, vice president in financial services firm
6	**Mid-senior management positions:** e.g. corporate treasurer in manufacturing, senior vice president in financial services
7	**Senior management positions:** e.g. chief financial officer in manufacturing, executive vice president in financial services, senior partner in law or accounting firm
8	**Top positions:** e.g. chief executive officer, managing partner
en	**Entrepreneur** Finance-related

Comparing Blair-Loy (1999) and own categories concerning position levels
Explanations for variables bs, nf, 1, 2, 3, 4, 5, 6, 7 in sequences

Organization Size

The second variable in my SA is organisation size. One must expect that it is more difficult to achieve a CFO position in a large company with huge annual sales compared to a small-medium company. Paychecks and prestige often increase with the size of the company. At the CEO level many careers follow shifts in terms of companies moving from large companies to even larger companies across industries. Additionally, my focus is on top companies, and since organisation size formed my decisions for data selection, it was interesting to study variation in organisation size throughout the women's careers. Blair-Loy (1999) divided organisation size into four different categories: small, medium, large and very large organizations, but did not worry about the number of employees. She argues that the measure of size in terms of number of employees, is a poor indicator of a given jobs importance, due to the fact that many companies have downsized. She continues: *"In fact, many management consultants warned that an organization with a very large number of employees could be considered bloated and lend less rather than more prestige to executive positions"* (Blair-Loy 1999:1355). Consequently, she gave more weight to numbers: annual sales and number of assets for banks.

When studying women in finance, it is justifiable to award more importance to bottom line numbers than the number of employees, given the fact that the women's expertise is

dominantly handling money. It must be assumed that the more money a company is making, the bigger is the job and the more prestige is awarded to it. Nonetheless, I recognise that the number of employees does hold some importance especially in terms of GCs. One would expect that managing employees provide key competences to move up the company ladder. The position level category holds the same reasoning; I expect that as the women move up the ladder, their management responsibilities increases, and they supervise an increasing number of employees. An ideal candidate for upper management positions is expected to hold such competences and it is difficult to argue that such competences are not necessary for executive management positions even though finance-related. In contrast to Blair-Loy (1999) I chose to give some weight to the number of employees. I chose to code company size according to their rank on the Guld1000 list, but all had to hold a minimum of 100 employees in order to be included in the study. Blair-Loy (1999) also used a similar American list, The Fortune500 list. She calculates the median for a Fortune500 company and gives it the category 'Large' if it is smaller than the medium and 'Very large' if it is greater. I decided to categorise differently. Blair-Loy's (1999) approach had made sense if I included all 1000 companies. As I am only studying the top500, it made little sense to categorise all 500 companies in the same category, and it seemed more interesting to explore career movements within the top500 more closely. I decided to use three categories as well but divide them into Very Large (V), a top200 company, Large (L), a top500 company and Small-Medium company (M) ranking 500 > C or not included on Guld1000 list. It is important to note that my categories and versions of company size are strictly limited to a Danish context. A V Danish company holds no comparison to a V American company in terms of turnover and number of employees. It can be questioned whether the classification of a V company is relevant in a Danish context, but is in this case used to make a distinction between top200 and top500 company.

All companies are classified as M, V or L according to their current ranking on the Guld1000 list for 2015. See figure 4. The study does not take into consideration whether companies ranked higher or lower in earlier years, because information about companies' turnover throughout the years proved difficult to find. This variable therefore holds limitations as it can be easily argued that a company categorised V in 2015, had a different ranking in 1995 for example which will somewhat constrain my results. Nonetheless, a company might have had a lower turnover in 1995 compared to today, but the fact that it has developed into a top200 Danish company does gives an indication of the growth opportunities of that company and how holding a position within such a company can act as a 'stamp of approval'. Following, a dominant

share of the companies observed in the women's early years are large global companies like Arthur Andersen, Deloitte and Maersk, which I assume have somewhat equal ranking in early years and today. This means that many of the V companies have ranked high on lists like Guld1000 for years. Consequently, I do not assume this choice to significantly impact my results even though companies very close to the threshold classification between L and V may produce some limitations.

Furthermore, some companies had since the time of the women's occupation dissolved. This was for example the case of KPMG, which was bought by EY and NEG Micon now part of Vestas. Due to the fact that I know KPMG is a large company and used to be one of the largest PSFs in the world, often referred to as "the big five". I coded this company V. Other companies like NEG Micon, which I did not have such information about was coded "NA" for "Not Available".

Banks are not part of the original Guld1000, instead they are recorded separately in the magazine and have their own list and rankings. The women were not selected from these separate lists as the focus of the paper is on companies rather than financial institutions. Yet some of the women that I choose for my study did come across working in financial institutions during their careers and if the banks or companies were in the top 10 of their separate lists they were coded as V this was for example the case with Danske Bank and Nordea. Others were not part of any list and coded 'M'.

Figure 4: **Variable Organisation Size**

Organisation Size	Explanation
M	Small-Medium sized company Ranks x < 500 or not included on Guld1000 list Turnover less than DKK 811 mil.
L	Large company Ranks 200>x>500 on Guld1000 list Turnover more than DKK 811 mil. and less than DKK 2.022 mil.
V	Very large company Ranks x>200 on Guld1000 list Turnover more than DKK 2.022 mil.

Explanation for alphabet M, L and V in sequences

Industry Type

My third variable is industry type. It was interesting to explore the range of industries that the women were employed in. Did they for example start out in financial institutions like banks and eventually arrived at a position of a CFO in another industry like Energy or Transport? I used the Guld1000 list again to classify industries (2015). Guld1000 operate with 14 different industry categories: Construction, Energy, Design, Food, Trade, Cars, Industry, Pharmaceuticals, Materials, IT, Service, Transport, Conglomerates and Finance. 14 different variables would be too complex for my SA and I narrowed it down to five variables based on the industries observed and frequency within them. This led me to the following classifications: Finance & Conglomerates (FC), Industry Energy & Construction (IEC), Trade & Services (TS), Pharmaceuticals (PH) and Transport (TR).

Issues arose when I had to code subsidiaries. For example, Maersk Group is coded with a FC category, but some women works for Maersk Logistics, which is within the TR industry. I chose to code sub companies based on their actual work rather than the parent company. By making such a decision I believe I make industry-findings stronger, rather than basing their industry category on the parent company. In this way I am also able to detect industry movements within the same company and how this impact the women's careers.

I mainly observed employments in the private sector. Only one woman holds a position outside the private sector in her career, namely Elsa Lund Larsen who worked for some years in a Municipality. Such events was too rare to account for a separate category, thus observations were recorded 'NA'.

Figure 5: **Variable Industry Type**	
Industry Type	Explanation and Examples of Companies
FC	Finance & Conglomerates Maersk Group, Commercial Foundations, Pension Funds, Insurance Companies, Professional Services Firms like Deloitte, Arthur Andersen and KPMG
IEC	Industry, Energy & Construction Maersk Oil, Vestas, Danske Commodities, Loxam, MT Højgaard, Nilfisk and Novozymes
TS	Trade & Services Including Food, IT and Design ISS, SOS International, Falck, TDC, Phillips, Nordisk Film, McDonalds, Arla Foods, Carlsberg, Estee Lauder Cosmetics, Adidas, ECCO and Bestseller
PH	Pharmaceuticals Novo Nordisk, LEO Pharma, States Serum Institut and Coloplast
TR	Transport Arriva, DHL Express, Shipping Companies such as J. Lauritzen, Maersk Line and DFDS
Explanations for alphabet FC, IEC, TS, PH and TR	

7.3 Optimal Matching

I have now introduced my three variables included in my SA, and I turn next to explaining how I will study patterns within and between the women's careers. Optimal Matching is used for pattern search and it does so by calculating the distance between sequences using a chosen algorithm based on how much it costs to turn one sequence into another. In order to do so, the researcher must first set a specific set of costs for how much substituting one event with another costs and how much indels events costs. The following subsection will explain my theoretical and practical thoughts about the chosen substitution costs. This will be applied to the following cluster analysis resulting in a search for patterns within and among cluster groups. Career trajectories will be explained and discussed using abductive reasoning.

Cost Estimates

Most researchers let the costs follow some kind of principle or hierarchical structure (Blair-Loy 1999, Abbott 1999, Abbott et al 2000, Blanchard 2011, Seabrooke 2016). Developing a transition matrix is often the way forward. These costs provide the parameters for the optimal matching algorithms and are usually small (Abbott 1999:158, Abbott et al 2000, Gabadinho et al 2011). My cost estimates are based on information and knowledge generated about my sample in terms of job differences and job transitions. Following work by Pollock (2007) and Blair-Loy

(1999) I developed three separate costs matrixes. Specifically I will apply the following transition costs:

Figure 6.1: **Optimal Matching Transition Costs Matrix**

Position Level

	bs->	nf->	1->	2->	3->	4->	5->	6->	7->	*->
bs->	0	0	0	0	0	0	0	0	0	0
nf->	0	0	0,75	0,75	0,75	0,75	1	1	1	0
1->	0	0,75	0	0,75	0,75	0,75	1	1	1	0
2->	0	0,75	0,75	0	0,75	0,75	1	1	1	0
3->	0	0,75	0,75	0,75	0	0,75	1	1	1	0
4->	0	0,75	0,75	0,75	0,75	0	1	1	1	0
5->	0	1	1	1	1	1	0	0	0	0
6->	0	1	1	1	1	1	0	0	0	0
7->	0	1	1	1	1	1	0	0	0	0
*->	0	0	0	0	0	0	0	0	0	0

Organisation Size

	M->	L->	V->	*->
M->	0	0,75	1	0
L->	0,75	0	1	0
V->	1	1	0	0
*->	0	0	0	0

Industry Type

	FC->	TS->	TR->	PH->	IEC->	*->
FC->	0	1	1	1	1	0
TS->	1	0	1	1	1	0
TR->	1	1	0	1	1	0
PH->	1	1	1	0	1	0
IEC->	1	1	1	1	0	0
*->	0	0	0	0	0	0

The matrixes provides the parameters for the Optimal Matching algorithm
Organisation Sizes: Small-medium (M), Large (L), Very Large (V)
Industry Type: Finance & Conglomeerates (FC), Trade & Services (TS), Pharmaceuticals (PH), Industry, Energy and Construction (IEC)
Position Levels: business school (bs), non-finance position (nf), 1, 2, 3, 4, 5, 6, 7. See 7.2 for further explanation
** Represents missing information*

The matrixes reflect what moves make up major differences between two sequences and which ones reflect minor differences (Blanchard 2011:14). In this way, the costs reflect whether some moves are move 'dramatic' than others and are dominantly based on mobility information.

The matrixes function as a 'look-up' tables, where the cheapest cost of a multiple states change can be found by calculating the sum of each substitution costs (Pollock 2007:171). The matrices above are symmetric along its diagonal line. The cost of moving from state 1→ 2 cost the same whether you substitute a row with a column or a column with a row (Blair-Loy 1999). The main diagonal is filled with zeros, since I assume replacing an event with the same event is costless, such a transition is called a match (Blanchard 2011:10). I also assigned zero cost moving from bs → any other position level. This choice was made since many of the women embarked on educational degrees parallel to employment, for example GDs, and I did not want the issue of not being able to record parallel transitions to impact my results significantly. Furthermore, even though acquiring ones first job is challenging, I do not view is as significantly challenging, and thus was not assigned a cost. This assumption is based on GCHs: where women and men are expected to face somewhat equal barriers in the beginning of their careers, but this changes the further up the company ladder they move. Therefore I chose to give more weigh to other transitions.

The other cost estimates are rather constant until the transition to level 5, that of a CFO. This decision is also based on GCH literature. Since women in Denmark currently hold only 7% of all executive management positions in the private sector, I expect that this exact step is more challenging than any other. Consequently, the transition from 1, 2, 3, 4 → 5 for was set at 1.00. The same applies to moving from 1, 2, 3, 4 to the level of CEO or professional board member. As I did not want to place significant weight to the few women who have advanced above the level of CFO in the SA, I assigned a cost of 0 when transitioning from 5→6→7. This decision was made in order to have these women spread out more in the cluster analysis. The decision was also based on the fact that some of the women have gone directly from 5→7 and have not necessarily served as CEO. It therefore seemed that once you hit 5, you have the competences developed to take on both 6 and 7.

Industry transitions were assigned constant costs of 1. In this way, shifts between industries are costly, but I do not assume that particular shifts between industries are more 'dramatic' than others. I could have chosen to differentiate costs between industries according to what industries are male-dominated, female-dominated or gender-neutral. However, I wanted to let the empirics guide my results, rather than my assumptions about gender barriers in different industries resulting in the decision about constant costs.

Applying Abbotts reasoning (1999), I expect it to be more costly to move between organisations rather than advancing within the same company where the women might be able to

make use of intra-organisational networks. All organisation size transitions were assigned a cost, and I assigned a further cost to the move to a top200 company. I assume such a transition is more challenging to undergo because it comes with more prestige, in some cases a higher pay, and might require stronger inter-organisational network skills than a move between M → L. Changing organisation, but not organisation size reflects in this case a match, and was assigned a costs of zero. Furthermore, I assume that an organisation size transition has the same cost independent of parallel position level and industry transition. Creating separate costs matrixes, means I assume it is just as challenging to switch company when advancing from 3→4 as 4→5 and independent of industry shift. Furthermore I assigned an indel cost of 0.5, exactly half of the largest substitution cost in order to accommodate the different sequence lengths (Please turn to chapter 6.3 and appendix C for more information).

These costs estimations will provide as the parameters for the OM algorithm and enables me to produce a distance matrix using the programming language R. (Please see full R-script in appendix L). Distance Matrix is found in appendix D. Just like the substitution matrix its main diagonal line is made of zero's because it has a zero distance between identical distances. Sequences who are very different from each other in terms of different proportion of states and in a different order have a large distance between them (Blanchard 2011:15). At a quick glance, it can be observed that very few women have large distances between them, illustrated with a dark blue colour in the distance matrix. This is the case with Ruth Schade and Anne Broeng. Most of the women do not have a distance between them with more than 1 in value. Some sequences are very close to each other and almost look like a perfect match. This is the case of Gitte Aabo and Annette S. Nielsen who both have a dominant share of their career in Leo Pharma as well as Helle Østergaard Kristiansen and Naja Lyngholm Skovlyk who both work for an energy trading company. The distance matrix provides an illustrative matrix of all the women, but it is difficult to make generalization about patterns here (Pollock 2007:168). For a further exploration of this space, I turn to Cluster Analysis next.

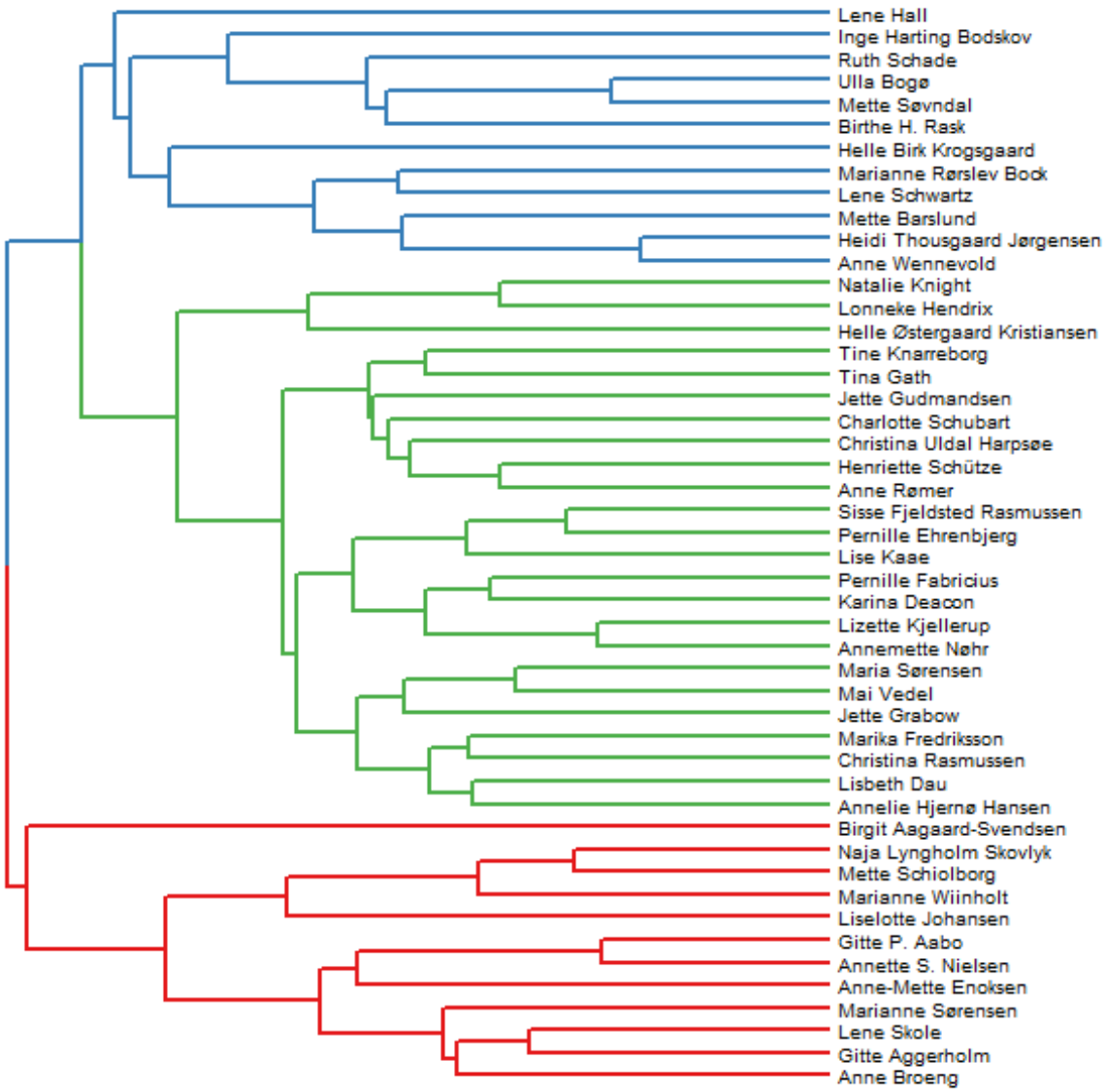
Cluster Analysis

Cluster analysis (CA) provides the researcher with a tool to classify the sample in groupings. Based on the substitution matrixes, the approach enables me to study and explore patterns within the data set. The CA compares the women's concrete career steps and unveils similar features in their careers in terms of position levels, organisation size and industry type. Before turning to the clusters, it is important to mention that some women were left out of the

dataset for statistical reasons. This choice was made because they have notable short sequences because of lacking information, and it was important that they did not significantly impact my results due to their sequence lengths. Even though the indels costs were set specifically to address sequence length issues, they could not comprehend careers as short as these. I first conducted a CA and quickly found that these women gathered in their own cluster. Consequently, Heidi Shütt Larsen, Kristin Muri Møller, Lone Kolin, Marianne Schelde, Ulla Bogø and Vibeke Dalsten were left out of the CA. Elsa Lund Larsen was also chosen to be left out, even though I have full information about her occupational history. Her career was within the public sector, and this means that it was not possible to classify her employments with my categories and her occupational history was dominantly coded with "NA". As I assigned transitions to and from missing information (*) to be 0, she ended up being very similar to all the other women, and this placed her as an outlier in the cluster analysis. I therefore decided to leave her out. I eventually arrived at a total sample of 47 women for my SA. The CA using the programming language R produced three main clusters illustrated in figure 6.2.

A few broad observations are interesting to highlight before moving on. On average my group of women spend only 3.8 years in an M organisations, but respectively 9.4 and 9.9 in L and V organisations. The results indicate that spending the majority of your career in a top company is necessary for eventually serving as CFO in a top company. Furthermore, the women spend most of their careers in entry-level positions (7.3) and serving as CFO (7.1). Means in 2, 3 and 4 are respectively 2.6, 2.4 and 3.6. These results suggest that on average the women spend many years in their first occupations, building up competences and networks, but once they are promoted to level 2, they spend fewer years in the following levels before reaching level 5 (CFO). All state combinations were unique and only very few distinct state combinations (leaving out the time spent in each state) occurred. Presenting the most likely combinations of different states is therefore not relevant for this study.

Figure 6.2 **Optimal Matching Cluster Analysis Dendrogram**



Cluster Analysis using the Agglomerate Nesting algorithm
Sample: 47 women

7.4 Career Trajectories

The following will briefly tell the story of my three main clusters and next deal with similarities and dissimilarities within and between the clusters structured by the selected the variables; position levels, organisation size and industry type. In this way, the section will address the sub research question of "whether the women's careers are coincidental or follow clear trajectories?". Before going in to more detail with the clusters, two concepts are relevant to introduce here: orderly and a disorderly careers (Blair-Loy 1999:1362). Orderly careers follow a long upward surging path ideally within one organisation, while a disorderly career is defined by many shifts in between both industries and companies. The section will be complemented with graphics produced with the programming language R. More graphs can be found in appendix E to K.

Cluster 1 consists of 11 women having noteworthy orderly careers. This means that their careers follow ordered states in terms of position levels, have very few industry shifts, namely 0.9, and spend the majority of their careers within the same company. I call this cluster "Starting out big" because as will be shown next, their share of V is not only dominant throughout the women's entire careers, but have also proved important for their further career advancement.

Cluster 2 consists of 24 women, and I shall refer to this group as "Working their way up", because they dominantly start out in L organisations and work their way up to V organisations. This group of women is characterised by many shifts in company, organisation size, and industry, and therefore reveals disorderly careers.

Cluster 3 consists of 12 women who have disrupted careers and tend to move back and forth in position levels while mainly operating in M and L organisations. I call this group "Jumping Levels".

Figure 6.3: **Optimal Matching Cluster Analysis**
Average number of transitions in different states

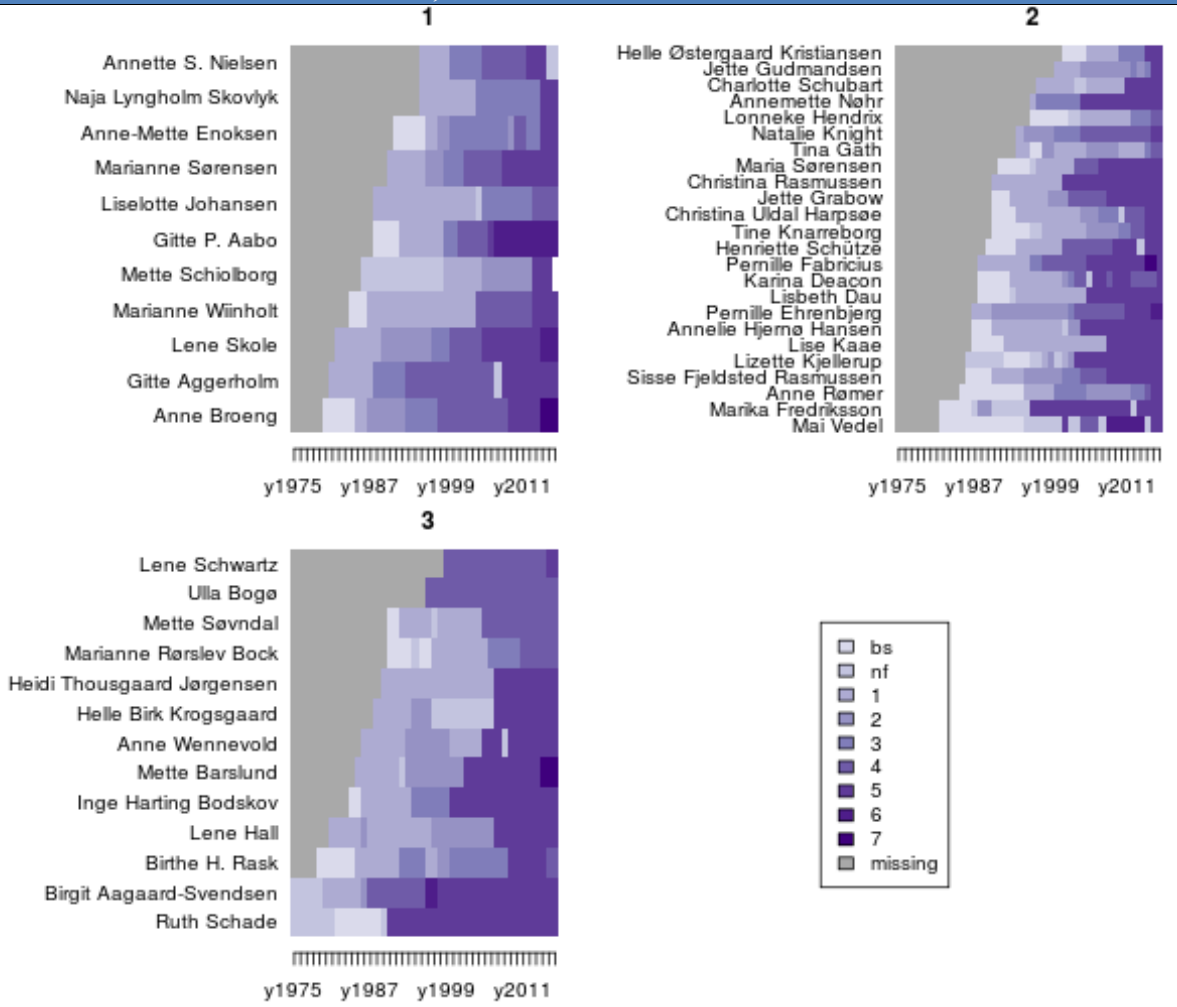
Cluster Type	N	Before reaching CFO	Position Levels	Organisation Size	Industry Type
Cluster 1: Starting out big	11	4.9	4.2	0.9	0.9
Cluster 2: Working their way up	24	5	4.8	1.7	2.2
Cluster 3: Jumping Levels	12	4	3.6	1	1.3

Cluster Analysis using the Agglomerate Nesting algorithm in the programming language R

Position Levels

Figure 6.4 portrays all the individual sequences for the three clusters of women and their career moves in position levels. Their sequences dominantly run from light purple to dark purple exhibiting career moves from business schools, next the different position levels and eventually their careers culminates in CFO levels (Please turn to 7.2 for details). Cluster 1 illustrates very orderly careers: this group of women have an average number of 4.9 transitions before reaching CFO, advancing smoothly up the career ladder and hold very few job shifts (Blair-Loy 1999:1362). Cluster 1 includes women like Gitte Aabo and Annette S Nielsen who spend the majority of their career within the same company, specifically LEO Pharma, Marianne Wiinholt who spends 9 years in Dong Energy before advancing to CFO in the same company and a similar observation is made for Mette Schiolborg from Statoil and Naja Lyngholm Skovlyk from NEAS Energy. Two women do not completely fit this description, these are Anne Broeng and Anne-Mette Enoksen, but their careers can still be characterised as orderly. Broeng follows the ordered five position levels to CFO. She does however change company more often in comparison to the other women within this group, but stays within the same sector throughout her whole career. Enoksen mainly advances within Maersk companies, and then changes company to Arriva in order to advance to level 5. In general, cluster 1 suggests strong indications of ILM, which follows Blair-Loy's findings closely for her cluster 1 (1999). Interestingly, not all women within this group advance to level 5 within the same company. Some of the women have to shift to another company in order to advance from 4→5. Such a finding works well with earlier conclusions made by McPherson et al. (2001): He argues that evidence of homophily, in this case the preference of association with the same gender, increases the further up the occupational hierarchy you go. The fact that these women have to shift company in order to reach executive level follows McPherson et al.'s findings. Because of preferences of association with the same gender, an inter-organisational career move may prove necessary to reach level 5. Drawing on earlier research, women tend to be excluded from internal networks, and the move may portray a successful employment of external network strategies in order to reach a higher occupational level (Hagen et al. 1998, Blair-Loy 2001, Eagly et al. 2007, Briscoe et al. 2014, McPherson et al. 2001).

Figure 6.4: **Optimal Matching Cluster Analysis**
Position Level Index Plots: Cluster 1, 2 and 3



Cluster Analysis using the Agglomerate Nesting algorithm
Position Levels: business school (bs), non-finance position (nf), 1, 2, 3, 4, 5 (CFO), 6 (CEO), 7.
Go to 7.2 for further explanations

Cluster 2 displays a different picture: this group is orderly in terms of position levels, but have many company shifts. Their careers display exactly 5 transitions (Figure 6.3) moving from bs→1→2→3→4→5 but their employments are observed over a wide range of companies. Cluster 2 does not indicate ILM but shows the women's ability to move in ordered position levels despite working across different companies. This group of women somewhat resembles Blair-Loy's "movers and shakers"-group because their moves between companies creates career opportunities, and by exploiting these advantages, they have been able to advance to high-level positions in large companies (Blair-Loy 1999:1359).

Dissimilarities are especially observed between 1 and 2 concerning bs-events. Few 'bs' start sequences are observed in cluster 1, and it is interesting to study whether this is because the

majority of the women hold an educational degree obtained parallel to employment. 64% of the women in cluster 1 hold GDs in Financial Management and Auditing, and some supplies with Master's later on. Three women hold only Master's degrees, one only a Merkonom degree and Mette Schiolborg is the only woman in cluster 1 to hold a non-financial education, as she is an engineer. Lene Skole also hold an education outside of the finance area, but supplies with a GD later on in her career. Anne Broeng, Marianne Sørensen, and Wiinholt are three of the women with bs-start sequences in cluster 1, who all hold Masters degrees. The last is Gitte Aabo who first gained a Bachelor's degree and then later added a GD. Consequently; cluster 1 shows strong evidence of homophily. The majority of the women hold same educational degrees; they all follow rather orderly careers with very few transitions in companies, thus strong indications of ILM. A pattern appears concerning the association between women holding GDs and working in companies with strong ILMs. Evidently, pursuing a GD implies spending most of your career within the same company. It appears that when companies invest in the women, by paying for the GDs, that the women obtain parallel to employment, the women stay within the same company for a long time and have the ability to advance to CFO within that company.

Cluster 2 tells a different story: As clearly shown in figure 6.4, the majority of women in cluster 2 begin their finance careers in business school. This is the case for 63% of the total group, while two women have observed bs-events after a 1-event or nf-event, namely Tina Gath and Lizette Kjellerup in respective order. Interestingly, only five of the women in this group hold a GD while 92% hold a Master's Degree. Six women are also certified State Authorised Public Accountants (SAPA), which amounts to 75% out of the total amount of observed women with such a degree. Drawing on the principle of homophily, it appears that holding a Master's degree and SAPA creates more disorderliness in comparison to cluster 1 and the finance executives holding GDs. Tying this together with the fact many of the women in cluster 2 were employed at large accounting firms in their early years, these women are able to employ financial expertise gained in the beginning of their careers across many companies and industries later in their career enabling them to reach CFO by following ordered career steps.

In cluster 3, the most interesting feature is that they appear to skip positions levels. This cluster holds an average of 3.6 transitions in position levels. In comparison to the other two clusters, they do not follow the same orderly career ladders. For example, Lene Schwartz is only coded with positions in level 4 and 5, but none in 1, 2 or 3. Lene Hall jumps directly from 2→5 and Inge Harting Bodskov skips position level 2 and 4. Similar jumps are recorded for Mette Søvndal, Birthe H. Rask, Heidi Thousgaard Jørgensen, Ruth Schade, and lastly Mette Barslund

who jumps directly from 2→5. The latter is today a representative on the company's board of directors (7: dark purple colour) and is related to the owner and CEO of the company Thomas Barslund. This may suggest that relations to the company management may provide an opportunity to skip position levels. I tried to research relations between company owners and the remaining women, but was unable to conclude on other associations. Furthermore, women in cluster 3, not only jumps levels but also moves back in levels. Large degrees of turbulence are observed in this cluster concerning position levels with almost no evidence of ILM. It could be that my coding decisions do not adequately encapsulate these women. Take, for example, Mette Søvndal who interestingly skips levels not only within the same sector and organisation size, but also the same company. She advances directly from Business Manager to Finance Director. Søvndal is not coded in any events with level 5. She is reported as the CFO of Danish Estee Lauder on the women on board list, but her LinkedIn profile states "Finance Director". As I assume that Søvndal herself provides this information, I used this title in my coding. Following my categories, 'Finance Director' only reflects level 4 and her skip in positions might be a reflection of a mismatch between her titles and my categories. Nonetheless, the CA neatly encapsulates all women who follow disorderly careers in terms of position levels in cluster 3.

Another interesting observation in cluster 3 is made. This cluster also contains the women with the longest careers namely Birgit Aagard-Svendsen and Ruth Schade. Schade has been CFO of Harboe since 1990 and Aagard-Svendsen CFO of J. Lauritzen since 1998 (the company has recently reported that Aagard-Svendsen will resign in August 2016). Consequently, cluster 3 holds the women who were the first to become CFO out of the total sample, which the frequency plot in appendix I also clearly illustrates. Following, both Aagard-Svendsen and Schade started out in industries other than finance and hold non-financial educations. Therefore this group resembles Blair-Loy's "big fish in small-medium-sized organisations", since the women appear to work in smaller organisations, hold more job shifts than cluster 1 and some even begin their careers in non-finance-related fields (1999).

Many of the women in cluster 3 also have gaps in their resumes coded as "nf". Most of these events only last one year and can suggest events such as unemployment or parental leave. In this case, Helle Birk Krogsgaard is interesting. Disregarding her first employment with Nykredit, she spends her entire career working for Statens Serum Institut (SSI). In comparison to the other women coded "nf", she does not have a gap in her resume. Her nf-event is after 5 years at the company, where she enters a Director of Corporate Affairs position. After 10 years she eventually moves into the position of CFO.

When the women were asked the question "Do you know any of the following women", women receiving the most answers are observed in all three clusters: Anne Broeng, Gitte Aabo, Sisse Fjeldsted Rasmussen, Birgit Aagard-Svendsen, Marianne Wiinholt, Marika Fredriksson, Pernille Fabricius, Pernille Erenbjerg, Henriette Schütze and Lene Skole all received more than 30% of the answers (See figure 6.5 and appendix B2). In general they all have long sequence lengths and interestingly, Aabo, Skole, Fabricius and Erenbjerg have all advanced beyond level 5, but does not necessarily follow same career trajectories. In this way, my results indicate homophily among clusters because the women receiving most answers are spread across all clusters. The same is apparent for the question "do you discuss important matters with any of the following women?" here Henriette Schütze, Birgit Aagard-Svendsen, Marianne Wiinholt, Anne Broeng and Pernille Erenbjerg received the most responses (see figure 6.6 and appendix B2), all spread across all clusters, but only two of them have advanced beyond CFO. Consequently, my results indicate homophily but not all the women have long sequences or have reached level 6 and 7: for example, Henriette Schütze, located in cluster 2, does not have a significantly long sequence or have advanced beyond CFO, but many of the women have indicated that they know her, and discuss important matters with her. 46% women know her, and 13% discussed important matters with her. Many women also indicated that they know Marianne Wiinholt and Sisse Fjeldsted Rasmussen. What is interesting is, that together with Erenbjerg and Fabricius they all started their careers in Arthur Andersen and are all located in cluster 2. Even though I am not able to conclude direct network links, the results do indicate homophily, but difficult to conclude whether this group of women suggests baseline or inbreeding homophily. Nonetheless, 15 women informed me that they knew Schütze and 11 women answered that they knew Wiinholt. These numbers exceeds the number of women having worked for Arthur Andersen which points to inbreeding homophily.

Figure 6.5: "**Do you know any of the following women?**" Table displaying the ten women receiving the most responses			
Name of CFO	Response percentage	Response Rate	Cluster Type
Christina Rasmussen	15%	5	2
Anne Broeng	30%	10	1
Gitte Aabo	30%	10	1
Sisse Fjeldsted Rasmussen	30%	10	2
Birgit Aagard-Svendsen	33%	11	3
Marianne Wiinholt	33%	11	1
Marika Fredriksson	36%	12	2
Pernille Fabricius	36%	12	2
Pernille Erenbjerg	42%	14	2
Henriette Schütze	46%	15	2
Survey sent to all 55exectuive women in January, February and March 2016 33 responses. See also Appendix B2			

Figure 6.6: "**Do you discuss important matters with any of the following women?**" Table displaying ten women receiving the most responses			
Name of CFO	Response percentage	Response Rate	Cluster Type
Tina Gath	4%	1	2
Ulla Bogø	4%	1	3
Gitte Aabo	8%	2	1
Lene Skole	8%	2	1
Marianne Rørslev Bock	8%	2	3
Henriette Schütze	13%	3	2
Birgit Aagard-Svendsen	17%	4	3
Marianne Wiinholt	17%	4	1
Anne Broeng	21%	5	1
Pernille Erenbjerg	21%	5	2
Survey sent to all 55 executive women in January, February and March 2016 24 total responses. See also Appendix B2			

Organisation Size

Figure 6.7 clearly shows the different distributions of organisation sizes in the three clusters. Looking at cluster 1, we see that the share of V is significantly dominant within this group. In this cluster four of the women spend their entire career in V organisations and the rest spend a large share of their entire career in Vs (For individual graphics concerning organisation size, please turn to appendix J). In general these women make few organisation size transitions with an average of 0.9 transitions in this category resulting in the lowest average number of organisation size transitions of all three clusters (Figure 6.3). Three of the women in cluster 1 start out in a small-medium company, but eventually work their way to a V organisation. Two of

them take the route to a V organisation by spending a few years in an L organisation before moving on to V. One of the women; Liselotte Johansen goes directly from M to V. However, I do have missing data on Johansen between her job in M and V, which she may have spent in an L organisation. Additionally, this cluster suggests a general pattern concerning organisation transitions. The women that move between sizes have dominantly followed a hierarchical order transitioning from M→L→V. And the same observation is apparent in cluster 2.

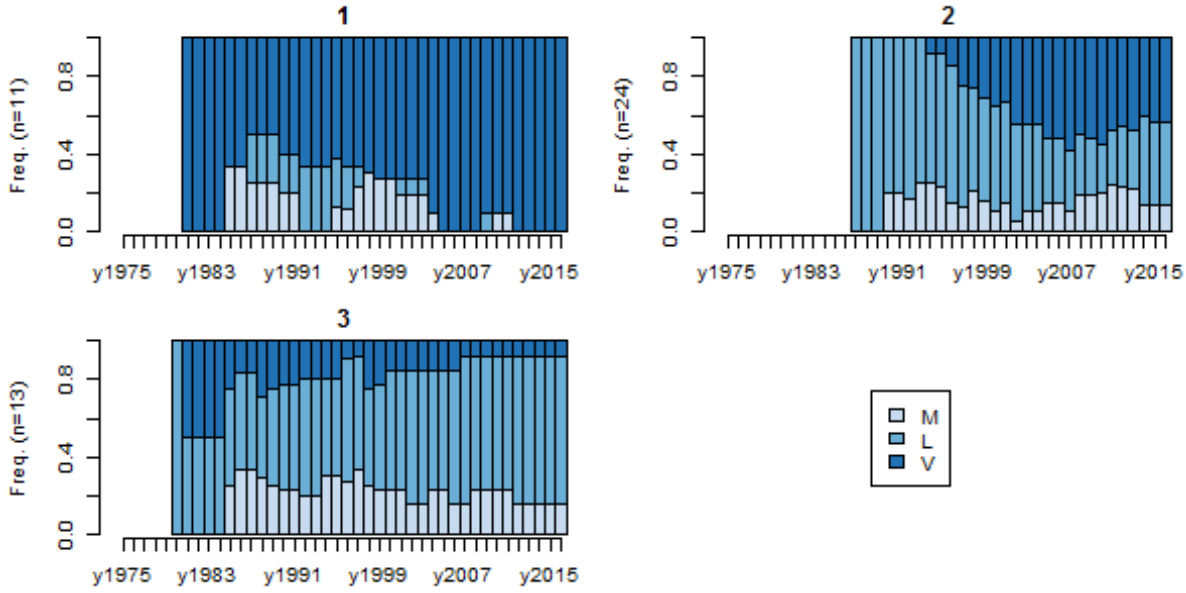
In comparison to cluster 1, all women that are observed in cluster 2 begin their careers in L organisations. They eventually work their way up either ending their career at a V organisation or a transition to V and then back to L. The average number of transitions in organisations size is higher than both cluster 1 and 3 with a value of 1.7. Even though V organisations are observed here as well, they are not as dominant as in cluster 1. In comparison, here the women spend more time in L organisations throughout their entire careers. For some it is a dominant share of their entire career, for others it falls evenly between L and V. 75% of women within this group work at some point in their career in a V organisation, while only 46% end up in one. 87,5% of the group work in an L organisation at some point in their career, 71% of the group start out in L and 42% end in one. Their end-sequences tend to be somewhat equally spread between V and L. Three women end as CFO in small-medium firms, namely Mai Vedel, Maria Sørensen, Lisbeth Dau (Appendix J), and interestingly, all are members of a 'VL-gruppe'. In fact, 5/7 of the women represented in VL-grupper, is found within this cluster. The remaining two are spread in cluster 1 and 3, namely Lene Skole cluster 1 and Lene Hall cluster 3. Cluster 2 contains the majority of the women observed in the total study who are members of Denmark's most prestigious business leader network and this may suggest that the cluster successfully employs external networks strategies to overcome intra-organisational barriers to advancement.

In cluster 3, few V observations are in general found within this cluster. L is more popular together with M, and the women largely appear to stay within the same sized company, and they rarely operate across all three (Appendix J). The average number of transitions within this cluster concerning size is 1. Lene Hall shows a different pattern, as she skips position levels when she changes company from V to L. She stays on for only 1 year and transfers to a M company, where she now serves as CFO. It appears that some of the women within this group changes company in order to advance, but as in the case of Hall, is met with the need to decrease in company size twice in order to first advance to CFO and next to hold on to her position as CFO. These decisions may naturally reflect individual considerations concerning career choices based on other variables than those included in my SA, but it does suggest a pattern for the

importance of company size in career advancement. It may appear important to decrease in company size in order to increase in position level.

The importance of organisation size is also reflected in the survey results. All women besides one who received most answers in terms of "knowing" currently work in V organisations (see figure 6.5 and appendix J). Henriette Schütze currently work at Nordic Tankers, a L organisations but have previously worked for DFDS, a V organisation. Two women worked their entire career in V organisations, and the others have worked in both L and V. It appears that the size of organisation affects how well connected you are to other women CFOs. The same is apparent in the survey results concerning question 4 "do you discuss important matters with any of the following women?": The top four women receiving most answers namely Birgit Aagard-Svendsen, Marianne Wiinholt, Anne Broeng and Pernille Erenbjerg all work for V organisations.

Figure 6.7: **Optimal Matching Cluster Analysis**
Organisation Size Frequency Plots: Cluster 1, 2 and 3



Cluster Analysis using the Agglomerate Nesting algorithm
Organisation size: Small-Medium (M), Large (L), Very Large (V). Go to 7.2 for further explanations.
The frequency plot clearly shows the different patterns. The frequency plots are somewhat ambiguous because the women's sequences are not of the same length. Please turn to appendix J for index plots that does however reflect the exact same patterns.

Industry Type

Figure 6.8 neatly displays the frequency of types of industries observed in my three clusters. Cluster 1 shows that the women rarely change industry. This category holds a low average of 0.9 transitions in industry type. The graph shows that many of them are starting out in FC, advancing within that industry and then at one point make a transition to another industry. IEC together with PH are the most popular industries when the women chose to move within this cluster. Two of the women stay within FC their entire career, namely Anne Broeng and Gitte Aggerholm (See appendix K). It appears that the majority of years spend within FC are greater in cluster 1 than in any of the other cluster, neatly displayed with a red colour in figure 6.8, while the average of transitions in industries is also lower. At first, two groups of women stick out in cluster 1. Firstly, a group of women who spend their whole careers working in financial institutions, and another group of women who spend the majority of their career working for Maersk. Anne Broeng spends her whole career working in finance institutions; banks, PSFs and pension funds and the same pattern is observed for Gitte Aggerholm who starts out in Deloitte and come across insurance companies and pension funds later in her career. The second group consists of women like Lene Skole, Marianne Sørensen and Anne-Mette Enoksen: from 1982 to 2003, before she eventually joins Coloplast to become CFO, Lene Skole spends her whole career in Maersk Group. The same goes for Marianne Sørensen: she works for Maersk Group from 1990-2008 and eventually changes to the sub company Maersk Drilling to become CFO. Anne-Mette Enoksen spends over half her career with Maersk, followed by occupations with KPMG, the Containership Company and eventually becomes CFO at Arriva. These findings follow closely my conclusions made about positions levels in cluster 1: it appears that some women within cluster 1 advance to CFO in the same industry, whilst others find it necessary to change company *and industry* in order to advance further.

Concerning industries another interesting observation appears in cluster 1. All the women dominantly work in male-dominated industries throughout their careers. FC dominates this cluster followed by occurrences of heavier industries like IEC together with PH and TR. No women in this cluster work within the TS industry, which is considered more gender neutral. Following the principle of homophily, this is an interesting finding because assuming the principle holds in my case I would expect the women to face severe constraints to their career advancement when working in male-dominated industries. Nonetheless, these women have been able to advance to executive level despite potential gender barriers indicating that women following orderly careers mainly within same company and industry increase their chances of

reaching CFO level regardless of the type of industry. Cluster 1 women's choice to stay within male-dominated industries can reflect a conscious career strategy and indicate that they have been able to built up stable heterophilous networks helping them climb the career ladder. However, the group does show indication of homophily evidence at the executive level (McPherson et al. 2001:434), because some of the women found it necessary to change company in order to advance from 4 to 5.

FC is also popular industry in cluster 2, particularly in the beginning of the women's careers: 67% of the women start out here. Anne Rømer, Christina Uldal Harpsøe, Maria Sørensen and Lisbeth Dau all hold their first job at KPMG. Tina Gath joins KMPG as her second employment but at position level 1 as well. In fact 12/16 of the total sample of women who start out in one of the "big five" accounting companies: Arthur Andersen, Deloitte, KPMG, PwC and EY are observed within cluster 2. The evidence suggest that the women's first employment with such companies prove important for their career advancement, but also that their career will follow same patterns afterwards. Lise Kaae and Pernille Fabricius for example have a short distance between them (See distance matrix in appendix D). Kaae spends her first 16 years of her career at PwC before moving to Bestseller, where she currently resides as CFO, and Erenbjerg spends her first 15 years at Arthur Andersen, changing to Deloitte for one year before moving to TDC where she eventually advances to CFO and later to CEO. Erenbjerg and Sisse Fjeldsted Rasmussen also hold very similar careers. Sisse also spends the first majority of her career at Arthur Andersen followed by a shift to Deloitte and eventually advances within the TS industry. Henriette Schütze and Anne Rømer spend 7 years at Arthur Andersen and 8 years at KPMG before both moving largely into the shipping industry. They also both work for DFDS at one point in their careers.

In cluster 2, the move from FC to TS is the most dominant one. 88% work at one point within the TS industry and 63% of the group is currently serving as CFO in this industry (See individual industry sequences in appendix K). PH and TR are also observed in the sequences in cluster 2, but not to the same extent. This group of women tends to change industry more often than the women in the other two clusters. The average number of industry transitions is 2.2 (See figure 6.3). So even though TS industry is the most popular, these women hold more jobs across industries than the other clusters. Take for example Pernille Fabricius; who changes industry seven times. In cluster 1, the highest amount of individual industry transitions is only three (Anne-Mette Enoksen), and these are only observed between two different kinds of industries, whereas Fabricius in cluster 2 moves between four different industries. Consequently, cluster 2

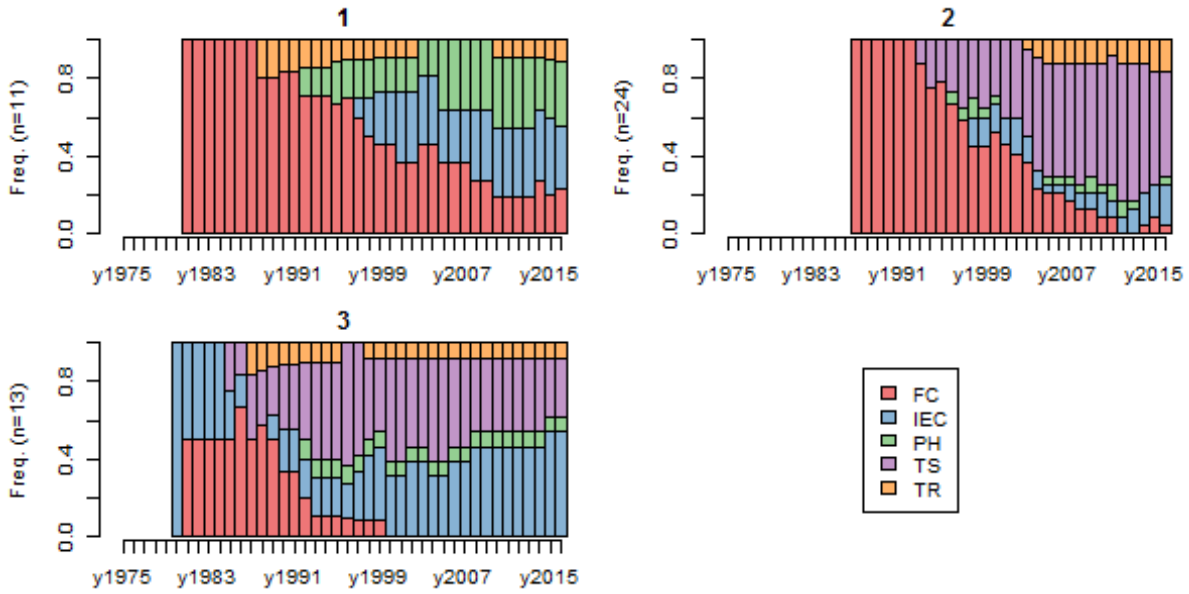
shows evidence of disorderly careers. They move between companies, industries and organisation size more often than cluster 1. It appears that such transitions prove important for the group of women's careers and evidence of ILM is not observed here. The evidence points at the importance of external network strategies rather than intra-organisational strategies for career advancement. Two women differ from the rest of the group, at least to some degree; these are Nathalie Knight and Lonneke Hendrix. They both advance largely within the same companies, Adidas and Phillips respectively. They have a low distance between them and interestingly, none of them are of Danish nationality. However, they both hold many positions within their respective companies and only spend a few years with each occupation. Even though these two women show more evidence of ILM in terms of advancing within the same company, they are more characterised as "movers" since they have shifted between different positions and departments within companies in order to advance to CFO.

In cluster 2, even though a pattern emerges in terms of industry type, the women also freely move between companies. Take for example Christina Rasmussen she starts her career in a financial organisation, moving on to Novo Nordisk, followed by Toms Gruppen and today serves as CFO for Carlsberg. Karina Deacon starts out in PwC, works for many years for ISS, followed by employments for companies such as Maersk Group and Saxo Bank, come back to ISS and today serves as CFO for Nilfisk. Interestingly, Pernille Fabricius and Henreitte Schütze who are also placed within this group also work for ISS A/S at some point in their career.

In cluster 3, the women show more signs of orderliness concerning industry in comparison to the other variables. However, the FC industry appears far less important for their advancement in comparison to cluster 1 and 2. In cluster 3, the women generally work within the same or two industries their entire career, where ST and IEC are popular choices. The average number of transitions is 1.3 for this variable (figure 6.3). For many of the women the information about industry type was not available.

Turning to the survey and the study of homophily, the most well connected women, the women receiving most answers in questions 3 and 4 (see figure 6.5 and 6.6) largely work in 'heavy' industries like TR and IEC besides Pernille Erenbjerg from TDC, Anne Broeng who have dominantly works in financial institutions and Pernille Fabricius who today serve as CFO for a pharmaceutical company. However, Fabricius mainly works in TR companies throughout her career. Interestingly, most women CFOs reported that they knew and discussed important matters with women who are well established in male-dominated industries, but not in FC who for both cluster 1 and 2 proved very important for their first years.

Figure 6.8: **Optimal Matching Cluster Analysis**
Industry Type Frequency Plots: Cluster 1, 2 and 3



Cluster Analysis using the Agglomerate Nesting algorithm
Industry type: Finance & Conglomerates (FC), Industry, Energy & Construction (IEC), Pharmaceuticals (PH), Trade & Services (TS), Transport (TR). Go to 7.2. for further explanations.
The frequency plot clearly shows the different patterns. The frequency plots are however somewhat ambiguous because the women's sequences are not of the same length. Please turn to appendix K for index plots that shows the exact same patterns.

7.5 Sub Conclusion

In conclusion, I found that the female executives careers fall into 3 well-defined groups or trajectories showing no indication of coincidental career paths. The three clusters are named "starting out big", "working their way up" and "jumping levels" and include: Firstly, an 'orderly' group of women mainly advancing within one or two V companies in 'heavy' and male-dominated industries, secondly, a 'disorderly' group of women moving between companies and industries, mainly starting out in large companies in the finance sector and eventually moving to TS, and thirdly, a group of women with long careers moving back-and-forth in position levels and where starting out in the finance sector have not been significantly important for their careers in L and M companies as in comparison to cluster 1 and 2. Consequently, in terms of occupational histories my group of women follow three clear trajectories. Blair-Loy found evidence that her group of female careers became more homogeneous over time (1999:1386) In the same way, I can observe in my study, that while the older women might have taken a degree outside of the finance sector, the younger women show more rigidness; dominantly pursuing Master's degree in Business Administration and Auditing, holding their first job in one of the top

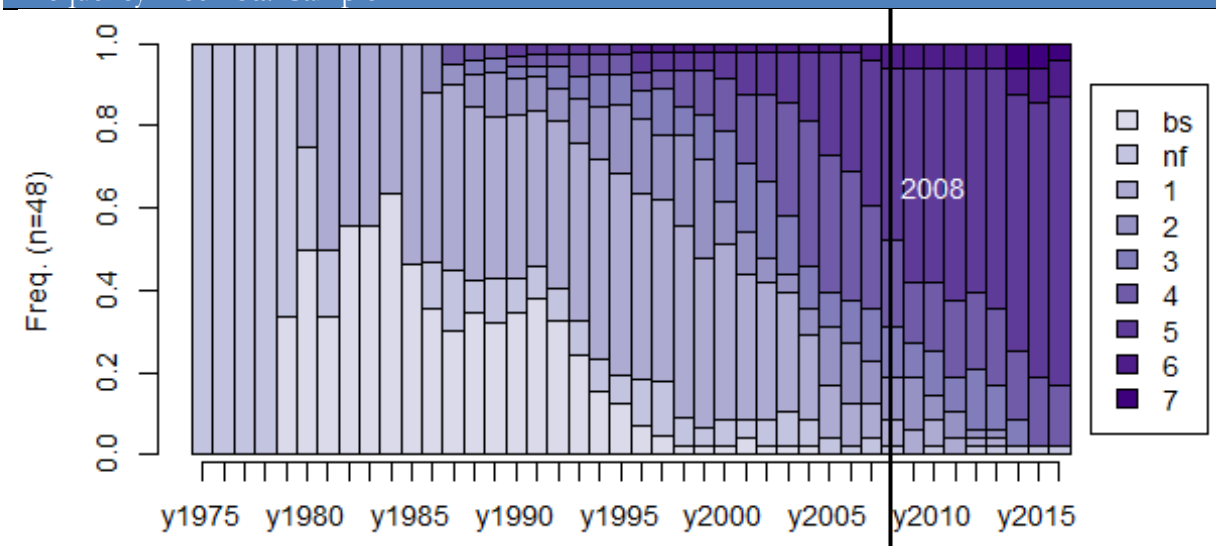
five accounting firms, and later employing their expertise developed there in other industries. In general, it is extremely rare for my group of women to hold jobs outside of the finance industry. Additionally, it is important to note that Blair-Loy also studied how legal changes in US in the beginning of the 19070's concerning women's employment rights affected the women's careers. She argues that; *"historical events shape careers by interacting with social structural constraints and opening"* (Blair-Loy 1999:1349). My first sequence state is observed is in 1975; therefore it proves difficult to study Denmark's gender equality laws affect on the women's career adopted circa mid 1970's without bringing in more subjective empirics. However, I see that the younger women in my dataset have reached CFO level with a significant faster pace than the older women, and particular it appears that 2008 proves an important year for my group of women. As will be shown next, despite age differences in my sample, from the year 2008 and onwards more women have reached CFO level compared to observations made before 2008.

Chapter 8: Glass Cliff or Window of Opportunity?

This chapter will provide a discussion for the rise of the women CFO's implications for breaking GCs. In this chapter it is necessary to complement the SA results with further theory in order to find out how female CFOs can lead to more female leaders, because SA and OM do not provide a model for prediction (Abbott 1999:171, se also chapter 6.2 and 6.3). I will especially focus on what implications it will serve for breaking GCs when women are largely appointed during times of crisis rather than boom periods.

The financial crisis proves an important period for finance specialists in general, as argued in the theoretical framework. After a decade of general high demand of finance competences, the financial crisis caused a new surge. Parallel to this increase in demand, the CFO gained even more responsibility in this period with the emergence of the Performance CFO and gained increase in decision-making power in most companies. It appears that finance experts successfully exploited exogenous developments to their own benefits. I expect this period to have implications for my group of women, and as will be shown next the women's career pace accelerated during this time despite high economic uncertainty and higher requirements for the CFO.

Figure 7: **Optimal Matching Position Levels**
Frequency Plot Total Sample



Optimal Matching applied in R, 47 women
More women CFO after 2008 than before
Position Levels: business school (bs), non-finance position (nf), 1, 2, 3, 4, 5, 6, 7. Go to 7.2 for further explanations

My data indicates a window of opportunity for the women during times of crisis. As figure 7 neatly illustrates, from the year 2008 and onwards more women reach CFO level compared to observations before 2008. After 2008 the data shows an increase in CFOs. If all women's careers follow rather orderly and 'natural' career ladders and are of same age, then we would expect them to peak around the same time. It could have been interesting to study a group of male CFOs within the same timeframe to investigate whether their careers peaked around 2008 as well. Nevertheless, my results do indicate a specific trend around the year 2008 that implies women's ability to utilize the surge in demand for their expertise as an effect of the financial crisis. This finding suggests that careers in terms of competences and training do not provide the full explanation for these women's success. To some degree the women's success have depended on their ability to exploit environmental changes or exogenous shocks to their own benefit. This finding is similar to Blair-Loy (1999). She highlights that a historical event cut across all factors and impacted the women's careers. Her finding rests on economic turbulence in the 1970's and 1980's together with changes in the legal environment. Drawing on earlier work she notes: *"Although social practices usually reproduce social structures with small revisions, historical events can abruptly interrupt social regularities and rearrange structures"* (Blair-Loy 1999:1389). Following this position, I suggest that my group of women have successfully taken advantage of the

opportunities that the financial crisis provided and thus been able to break GCs. Taking on top-level positions during times of crisis appears risky and one would assume that the odds of failure are significantly higher than during boom periods (Kim 2014). The success of the firm in an economic crisis depends dominantly on the CFO's ability to carefully manage a company in distress. Due to this job's high demand during crises, the women's continued advancement may depend on their ability to successfully turn the ship around. Consequently, the financial crisis may have created a window of opportunity for the women and breaking GCs, but implications for further advancement possibilities needs to be explored.

Other studies have explored linkages between gender and the financial crisis. Widmaier notes that high positioned women were more willing to publicly challenge dominant neo-liberal discourses during the financial crisis because of their outsider-status in their professional social networks. He concludes that because of their outsider status, women are more willing to take on risks compared to men: *"[…] while essentialist views of gender often stress the greater willingness of men to take risks, this analysis suggests that social contexts may often incline women to greater professional or intellectual risk taking" (Widmaier 2015:287).* Following Widmaier's work, if people left out of professional socializations are more risk-taking, because the professional losses are lower compared to insiders then the financial crisis proves an important window of opportunity for my group of women. Drawing on earlier work (Hagen et al. 1998, Blair-Loy 1999, Eagly et al. 2007, Briscoe et al 2014) and Widmaier's findings in terms of network restrictions and its affect on risk taking, it can be argued that my group of women have successfully exploited the financial crisis to their own advantage because they have been willing to take on more risks. I assume taking on the position of a CFO during the financial crises involves huge risks and demands tough decisions in terms managing a company in distress often requiring layoffs and sell outs. Turning around sinking ships have a high probability of failure, but the gains are also large if the CFO behind is successful. It can be argued that taking on such jobs demands risk-takers rather than risk averse professionals, people that are not afraid of failure.

The discussion of women being risk takers or risk averse was a popular theme in the aftermath of the financial crisis, however the emphasis was on women being risk averse not risks takers. The discussion revolved around whether the crisis could have been averted if women had been at the steering wheel. Sunderland (2009) was one of the first to point this out: *"Both feminist and mainstream economists have pointed out that the credit crunch is quite literally a man-made disaster, a monster created in the testosterone-drenched environment of Wall Street and the City. There is a growing body of opinion that, if there had been more female decision-makers, the agony could have been avoided"* (Sunderland

2009). Prügl explores in 2012 in "if Lehman brothers have been Lehman sisters" how the discourse following the crisis particularly in the English-language media classified women as being responsible and men as reckless. The media was quick to judge the occurrence of the crisis due to macho masculinity (Prügl 2012:25). Consequently, the only ones who could come to the rescue of the world economy caused by the men's recklessness were the more cautions and responsible female finance professionals. Women were portrayed as being more risk averse in terms of more prudent investment styles in comparison to men (Prügl 2012:27). Drawing on Prügl's work (2012) it can be argued that the increase in women CFOs in top Danish companies following the financial crisis was merely a result of companies attempt to bring in more responsible managers, rather than the women's risk-taking capabilities as an effect of their *outsider* status. In this view, the financial crisis created a window of opportunity for the women because they were perceived as the safe choice in times of distress. The women could as an effect of their "natural" prone investment and responsible management styles bring stability to companies facing high uncertainty and economic constraints. Such stereotypical perception of the finance woman was also observed at large accounting firms like Ernst & Young (Prügl 2012:30). Following this research, gender stereotypes concerning management styles offered a window of opportunity for the women and earlier studies have already found evidence of women being promoted to CEO when companies are performing poorly (Ryan et al. 2005, 2008, Cook et al 2013), but it seriously questions how sustainable this development is. If only a crisis with the same effects as the financial crisis of 2007-2008 can bring about more women CFOs, it questions what implications it will have for a more broad confrontation with GCs. Firstly, it can be argued that the women CFOs can bring about some change in the sense that they can act as frontrunners. These women operate in male-dominated industries and most likely have had men as their successors. By virtue of their employment in a powerful executive position, they can help set a new direction for the company, and bring in more women in leadership positions, especially if the women prove successful in managing the companies during times of distress. But the career opportunities that the crises create may act correspondingly as a trap, since the likelihood of failure is high in times of crisis. This ambivalence is well reflected in the case of Pernille Erenbjerg CEO TDC. Erenbjerg advanced from CFO to CEO in TDC in August 2015 and in a recent interview in the Danish Newspaper Jyllands-Posten, she has stated that she does not expect her appointment to be permanent (Stenvei 2016). She was appointed during periods of slow growth and a Danish telecommunication business unit that was incurring losses. In January 2016, she introduced a new strategy direction for the company and recognised it as a significantly

risky move as well as the negative signals it sent to TDC's shareholders: *"It is of course risky. But if you are not ready to take the risk, do not sit in my chair"* (Stenvei 2016).

Ryan and Haslam (2005) argue that in addition to GCs women are today likely to be placed on Glass Cliffs in corporations. They argue that because women are more likely to be appointed top positions under problematic organizational circumstances like under high economic uncertainty, women are placed on top of a Glass Cliff because their positions are more precarious (Ryan et al. 2005:88). As a result, women are more likely to fail when gaining leadership positions because their appointments are made on risky circumstances; they are placed under close scrutiny and easily disposed to blame and humiliation (Ryan et al. 2007, 2008, 2010 Cook et al. 2013). The Glass Cliff hypothesis proves particular interesting in the case of the CFOs because by virtue of their work, CFOs are already placed under close scrutiny. The market and the companies' shareholders pay close attention to the CFO. This makes the position of a CFO particularly prone to fail in comparison to other executive positions, such as HR and Communications, and even more precarious for women if appointed during times of crises. However, since women may not experience such job offers often, because women in general have fewer leadership positions compared to men, they may not feel they can decline (Ryan et al. 2008:542, Cook et al. 2013:1081). In this view, the window of opportunity that crises create for women promotes deepened inequality rather than having long-term effects on breaking GCs (Ryan et al. 2005:88). The women's ability to handle the crisis effectively is crucial for the their future career.

Another discussion follows concerning Glass Cliffs: not only does the precarious positions create high uncertainty for the woman and her future career, but researchers have argued that women are appointed to leadership positions during times of crises because women are perceived as expendables (Ryan et al. 2008: 543). In this way women merely perform as "scape goats", someone to take the blame when things turn badly and are easily disposed when the company enters a more booming period or if the situation does not improve. Studies have found evidence of women CEOs being fired at a higher rate in comparison to men and subsequently replaced by white men (Favaro et al. 2014, Cook et al. 2013). Such findings have serious implications for breaking GCs if the women have not been appointed because their qualifications match the challenging tasks of managing a company in crisis, but simply because they at not men (Ryan et al. 2008:560). In this regard my survey results concerning CFO responsibilities are relevant, because they indicate what strategic tasks the women spend their time on and consequently their influence in decision-making (Appendix B2). When asking my

group of women, what they spend most of their time on, a majority of the women agree that business finance including tasks such as strategy and planning, reporting and analytics together with business partnering is the task they spend most of their time on. Business finance receives a rating of 1,89. This result indicates that most women agree on the cross-functional character and importance of finance throughout the company. I assume they spend much of their time strategizing and planning while also reporting to the CEO and shareholders, but tasks that are still more short-term in character. The women spend less time on long-term strategic planning. The "Strategic Finance" task focus more on the firm's long-term vision and resembles more the work of a CEO while having finance in mind. This task comes in second in terms of what the women spend most of their time on, but receives an average rating of 3.11 and not firmly placed in the top where I would expect an ideal PCFO to place it. It is important to note, that these numbers are average number based on 40 responses, and while some women may spend most of their time on long-term strategic decision-making, some clearly does not. The results does however indicate that the majority of the women operate in the executive management suites and have delegated classical tasks such as bookkeeping and compliance measures to other finance managers, however most time is spend on short-term strategic planning rather than participating in long-term decision making. When asking the women what they consider as the most important tasks 'strategic finance' comes in first, followed by business finance (Appendix B2). It seems that even though the women do not spend most of their time on long-term strategic planning, they do consider it as the most important. It is difficult to make associations between Glass Cliff hypothesis and my survey results, but my results do indicate to what degree the women participate in strategic decision making, having the ability to impact the direction of the companies, rather than acting as pure scapegoats.

Summing up, based on the above discussion it can be argued that women in times of crisis are more willing to take on risks and challenge status quos. Reasons for this can be found in their outsider status and their restricted access to social networks, meaning that women do not have much to loose but a lot to gain. Because of the general low number of career opportunities, they are willing to take on appointments grounded on shaky circumstances and at companies facing enormous economic distress. Such positions offer career opportunities for the women if they successfully manage companies during times of crises and are able to turn the ships around. Yet, at the same time, these women are placed under close scrutiny, not only by virtue of their position as CFO, but because they embark on risky tasks under high uncertainty. This places the women on Glass Cliffs where the likelihood of failure is significantly high. Women are hired in

times of crises as saviours, either to calm down shareholders and to signal more responsible management based on stereotypical perceptions of the risk averse woman with a leadership style that matches crisis management more than that of her male counterpart. In conclusion, the financial crisis in 2007-2008 created a window of opportunity for my group of women because demand for their financial expertise was high and because companies requested alternative management styles to satisfy shareholder expectations. Sustainable implications for breaking GCs will depend largely on the degree of the women's ability to successfully manage companies during times of crises and the companies' willingness to keep them on board when facing periods of booms and new crises. Based on these findings, conclusions made by Ryan et al (2007) uphold in my case as well, crises offer opportunity but do not offer equal opportunity.

Chapter 9: Conclusion

The thesis begins with asking the research question "How can we understand the increase in women CFOs and what significance does it have for breaking GCs?". The aim is to gain a better understanding of how women have advanced to the executive management suite in the male-dominated industry finance, and the thesis is the first official attempt to study this development and its implications for breaking GCs. Previous researchers that have sought to explain GGs in leadership positions have mainly used the GCH; the notion that women can advance only to a certain level in companies simply because they are women. I argue that there is a gap in the GC literature, because existing research does not adequately explain how women in male-dominantly industries have advanced to the executive management level. My thesis demonstrates the need to complement GC literature with microanalysis that studies careers as whole and unique in a temporal context. It calls for further research on individuals' career trajectories, and their ability to navigate around structural barriers to advancement. By doing so, the GC literature will gradually be able to explain the individual actors that are able to shape and influence new occupational developments and consequently, its implications for breaking GCs.

I use SA and OM to investigate career patterns and my results suggest that the studied group of women CFO's success is not coincidental, but follow clear career trajectories. I empirically portray that the women's occupational histories fall into three clear clusters "starting out big", "working their way up" and "jumping levels": Firstly, cluster 1 touch upon the importance of advancing within the same company, the same industry and organisation size to reach executive level. The first group of women follow rather orderly careers, show strong evidence of ILM, but also appear to employ external network strategies in order to reach

executive level. Secondly, cluster 2 holds many job shifts across companies and industries. The women tend to spend a large share of their early years in top accounting firms, and it seems that the women develop crucial financial competences in the FC sector, and then employ these competences across companies and industries later in their career. Thirdly, cluster 3 suggests disorderliness with no clear career ladders and with shifts back-and-forth in position levels. These women spend less time in the FC industry compared to the other two clusters, and some hold educational degrees significantly different from finance. Overall, my data suggests that starting out in a top company and starting out in the finance sector proves important for eventually serving as CFO in a top company.

Finally I argue that the financial crisis in 2007-2008 represents an important period for the women's careers because my data suggests that more women were employed in executive management positions after the financial crisis. I complement my findings in the SA with external knowledge about historical developments that have the ability to impact and influence the women's careers. Earlier research has argued that women are hired during times of crisis to either 'save' companies or acts as 'scapegoats' placing women on Glass Cliffs with a high probability of failure. I close with a discussion of 'the rise of the female CFO' and its restricted significance for breaking GCs because research shows that appointments during times of crisis are based on stereotypical perceptions of women leaders rather than their competences. In conclusion, I argue that even though the financial crisis may have provided the studied women with a window of opportunity, resulting in more women CFOs, the crisis has not created equal opportunities for men and women. A sustainable 'rise of the female CFO' will depend on women's ability to safely manage companies during times of crisis.

9.1 Recommendations

It would be interesting to study whether this phenomenon and the same type of patterns can be observed in other countries. Future studies should explore whether these career trajectories occur in isolation or are part of a larger movement that formalises all women CFOs occupational behaviour. My findings are rather similar to Blair-Loy's, but future studies should consider the legal context surrounding the two cases as well as work-life balances. Denmark and US significantly differ especially in terms of pro-family government policies including maternity leave and state provision of childcare, and this raises the question of whether the work-life balance and high levels of life satisfaction can provide an explanation for why US ranks 12 on WEF'S GGGR concerning women in leadership positions and Denmark ranks as low as 81. I

chose to focus entirely on training and career paths and neglected information about family structures and their impact on career choices. An exploration of these choices may help answer the abovementioned question. Furthermore, it would be interesting to change the boundary conditions for my study and investigate whether my findings are restricted to male-dominated industries or also apply in female-dominated industries. In this regard, conducting the same study in the public sector and investigating dissimilarities between the public and private sector concerning career trajectories proves relevant, because the Danish public sector shows more signs of progress concerning women in leadership positions than the private sector.

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Marika Fredriksson

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Mette Schiolborg

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Natalie Knight

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Ruth Schade

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Sisse Fjelsted Rasmussen

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Appendices

Appendix A: List of all women CFOs

List of all women CFOs
CFOs in top500 companies
CFOs found via other lists, networks and media

Ranking Guld1000	Company Name	Name of CFO
1	A.P. Møller-Mærsk	Marianne Sørensen
3	Arla Foods	Natalie Knight
4	ISS	Karina Deacon
5	Dong Energy	Marianne Wiinholt
6	Carlsberg	Christina Rasmussen
11	Vestas Wind Systems	Marika Frederiksson
17	Statoil Refining Denmark	Mette Schiolborg
20	TDC	Pernille Erenbjerg
23	Bestseller	Lise Kaae
25	Danske Commodities	Helle Østergaard Kristiansen
33	Falck Holding	Lizette Kjellerup
35	DFDS	Anne Rømer
45	NEAS Energy	Naja Lyngholm Skovlyk
58	Leo Pharma	Gitte P. Aabo
70	MSC Scandinavian Tobacco Group	Sisse Fjeldsted Rasmussen
76	Thornico	Marianne Schelde
91	Telenor Danmark Holding	Kristin Muri Møller
109	Tjellesen Max Jenne	Liselotte Johansen
136	Hi3G Denmark	Birgitte Lund
163	J. Lauritzen	Birgit Aagaard-Svendsen
189	Arriva Danmark	Anne-Mette Enoksen
196	Arrow ECS Denmark	Annelie Hansen
210	McDonald's Danmark	Tina Gath
235	Dansk Retursystem	Heidi Schütt Larsen
244	Munck Gruppen	Christina Uldal Harpsøe
251	Ib Andresen Industri	Lone Kolin
289	M.J. Grønbech & Sønner Holding	Jette Gudmandsen
307	Harboes Bryggeri	Ruth Schade
310	DHL Express Denmark	Charlotte Schubart
317	Terma	Birthe H. Rask
329	Berendsen Textil Service	Ulla Bogø
332	Barslund Group	Mette Barslund
339	Statens Serum Institut	Helle Birk Krogsgaard
344	Norisol	Jette Grabow
379	William Cook Europe	Vibeke Dalsten
398	Colas Danmark	Anne Wennevold
405	Georg Jensen	Annemette Nøhr
439	Phillips Danmark	Lonneke Hendrix
475	Lantmännen Schulstad	Tine Knarreborg
500	Broen	Lene Schwartz
0	Nordea Liv & Pension	Gitte Aggerholm
0	Lundbeckfonden	Lene Skole
58	LeoPharma	Annette S Nielsen
0	Brd. Hartmann A/S	Marianne Rørslev Bock
726	Nordic Tankers	Henriette Schütze
0	Loxam Denmark	Inge Harting Bodskov
0	Silverfleet Capital	Pernille Fabricius
0	BIMCO	Mai Vedel
0	Arctic Group	Maria Sørensen
541	Union Engineering A/S	Heidi Thousgaard Jørgensen
0	RMIG	Lene Hall
854	Rosendahl Design Group	Lisbeth Dau
0	SIMAC	Elsa Lund-Larsen
0	Boardmember	Anne Broeng
725	Estee Lauder Cosmetics	Mette Søvndal Petersen

Guld1000 (2015)
See 6.1 for further explanations concerning data selection and criteria

Appendix B: Survey and Results

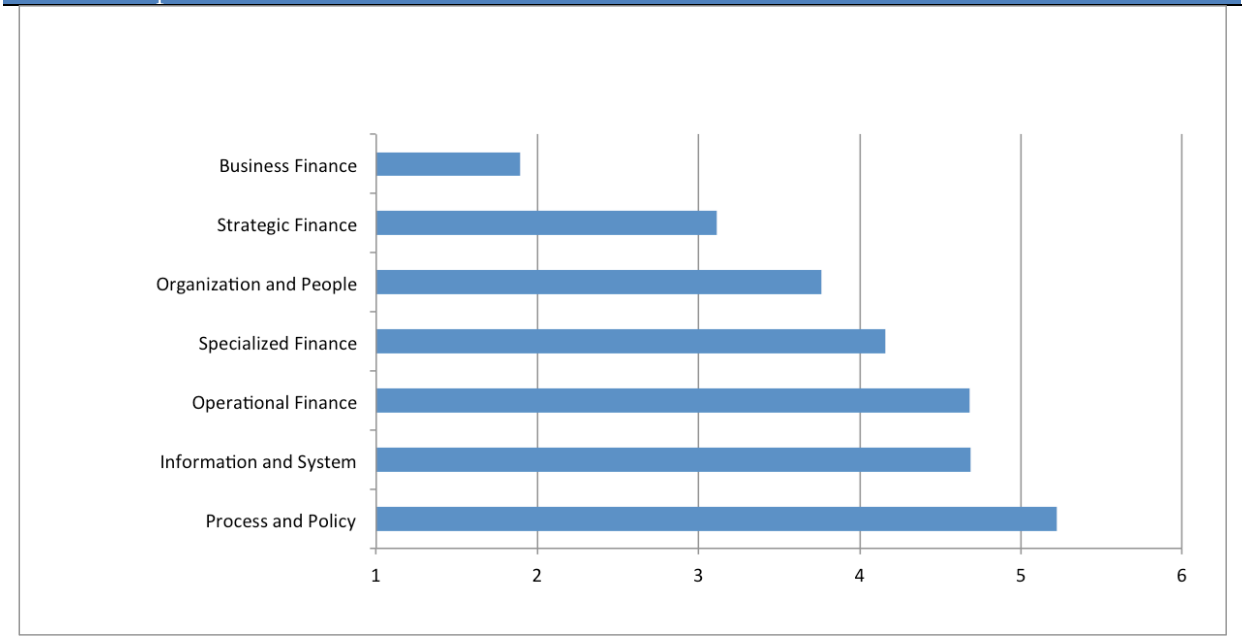
Appendix B1: Questions 1 and 2

Survey: **CFO work responsibilities**
Categories explained

1. **Strategic Finance:** The enterprise's long-term business objectives, continuous improvement of Finance, future vision of Finance
2. **Operational Finance:** Transaction processing, accounting operations, financial management and planning, financial reports.
3. **Business Finance:** Strategy and planning, execution, reporting and analytics, business partnering.
4. **Specialized Finance:** Risk and compliance, treasury and tax, external relations.
5. **Process and Policy:** Policies and procedures for operations, documentation, compliance measures, monitoring tools.
6. **Organization and People:** Developing new talent within the organization, implementing career plans, training programs, roles and responsibilities.
7. **Information and System:** Optimizing finance systems, architecture, applications, analytics and simulation, reporting systems.

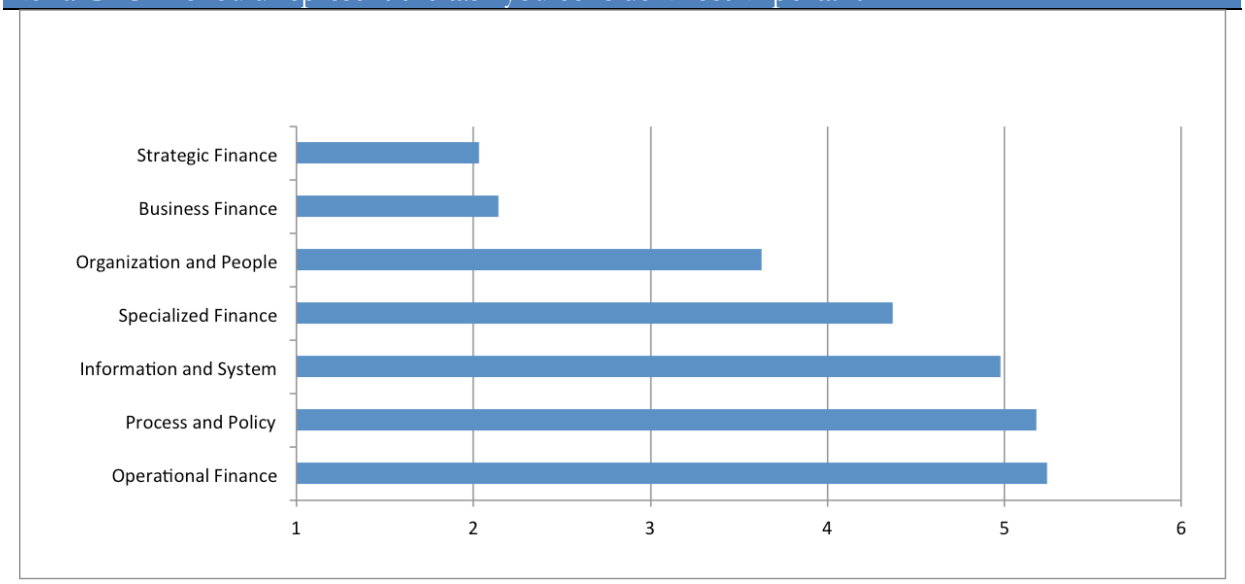
Surveys were sent to all women in the months January, February, March 2016
40 replies

Survey: **CFO work responsibilities**
Question 1: "Please rate the following tasks according to what you spend most of your time on. 1 should represent the most"



Surveys were sent to all women in the months January, February, March 2016 40/55 replies

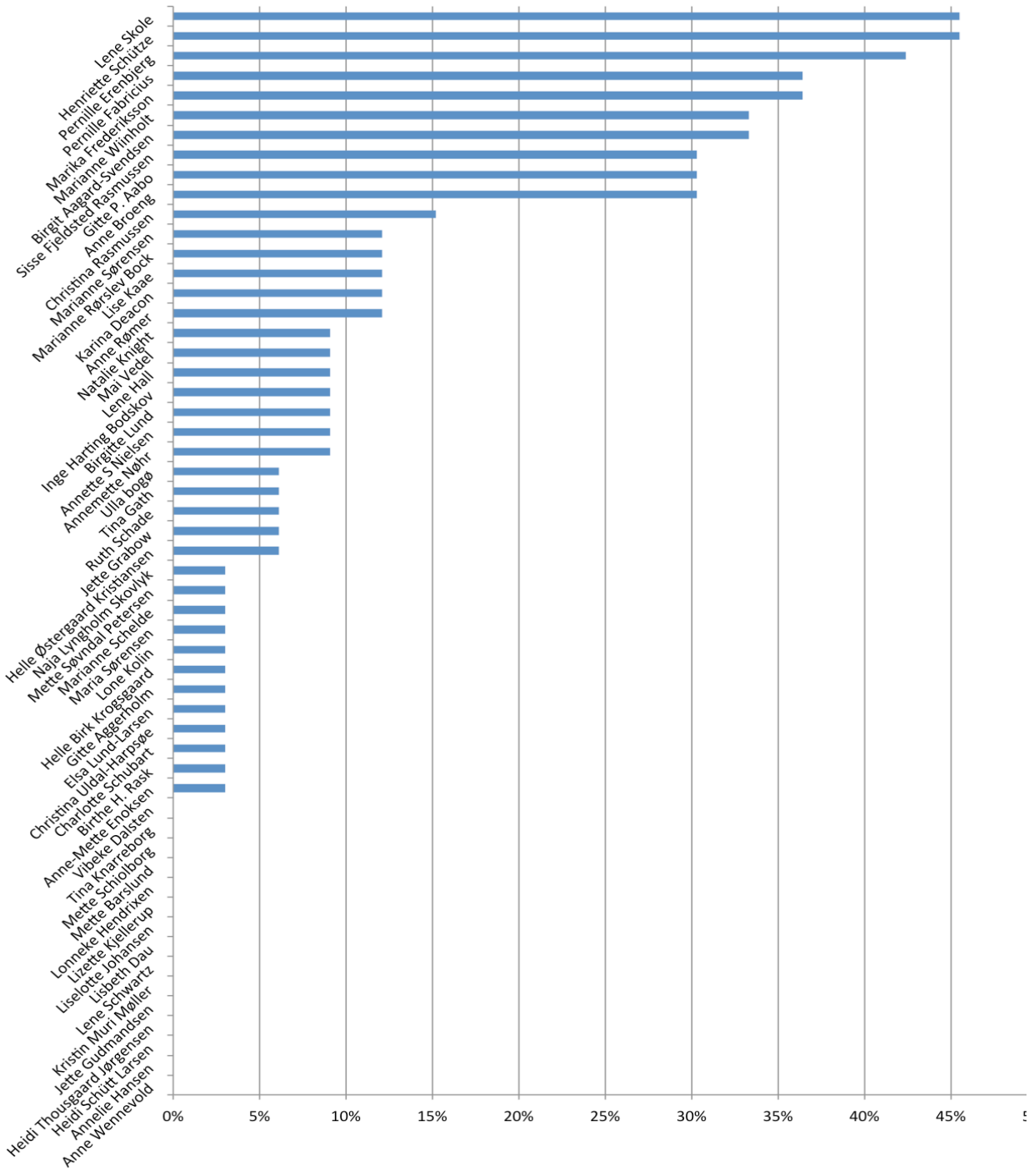
Survey: **CFO work responsibilities**
Question 2: "Please rate the following tasks according to what you consider the most important for a CFO. 1 should represent the task you consider most important"



Surveys were sent to all women in the months January, February, March 2016 40/55 replies

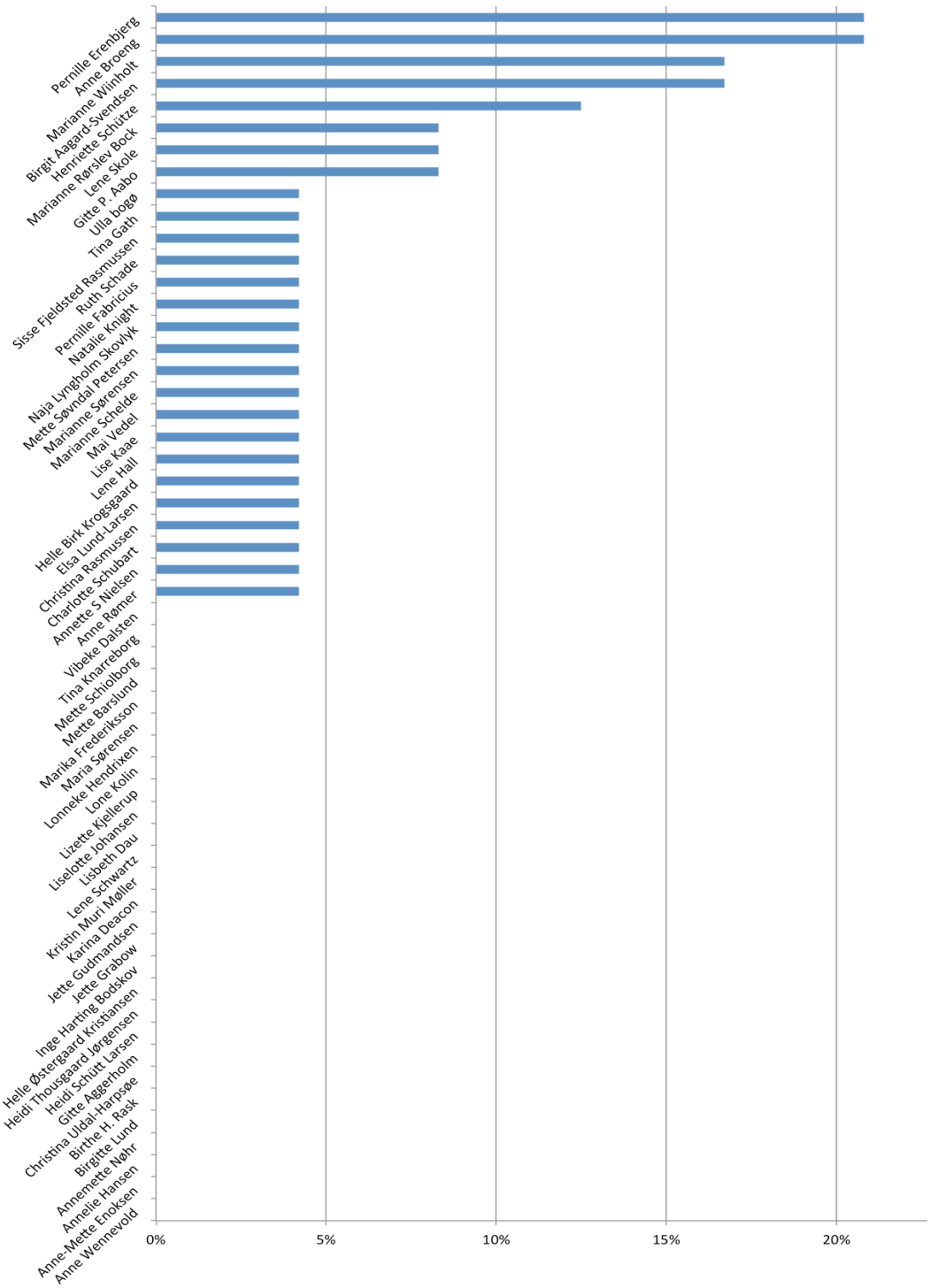
Appendix B2: Questions 3 and 4

Survey: Evidence of Homophily
"Do you know any of the following women?"



Surveys were sent to all women in the months January, February, March 2016 33 Replies

Survey: **Evidence of Homophily**
"Do you discuss important matters with any of the following women?"



Surveys were sent to all women in the months January, February, March 2016 24 Replies

Appendix C: Optimal Matching Explained

Optimal matching provides the researcher with a tool to explore similarities in the data by calculating distances between sequences. Consider the following five simple hypothetical career sequences A, B, C, D and E:

	Years																		
Sequences	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
A	bs	bs	bs	bs	1	1	2	2	2	2	3	3	4	4	4	4	4	5	5
B	1	1	1	1	2	2	2	2	3	3	3	3	3	3	5	5	5		
C	bs	bs	1	1	1	1	1	2	2	2	3	3	3						
D	bs	bs	bs	bs	1	2	2	2	2	2	2	3	3	4	4	5	5	5	5
E	1	1	1	1	1	1	1	2	2	4	4	4	4	4					

Hypothetical example of 5 women's careers (A, B, C, D, E) with the alphabet or career categories: business school (bs), first-entry level position (1) following occupational hierarchy: position level 2, 3, 4 and 5 observed over 19 years.

It is clear that the careers develop in an upward-looking manner, they all move through clear hierarchical position levels ranging from 1 to 5. Each entry represents one year which means Woman A's career or sequence is observed over 19 years with 19 events and Woman B 17 years. Subject A, C, D begin their sequences in business school (bs) while B and E start their career at position level 1. Subject B and E stand out, because they both skip certain position levels. Subject B advances after 14 years from level 3 to 5, while subject E advances after 10 years from level 2 to 4. Consider again the first two sequences from the above table:

Woman A **bs bs bs bs 1 1 2 2 2 2 3 3 4 4 4 4 5 5**

Women B **1 1 1 1 2 2 2 2 3 3 3 3 3 5 5 5**

By first look, it is difficult to conclude what career looks more similar to what career. In the following let "–" indicate a match that is costless, "I" stands for insertion costs and "S" for substitution costs, while "D" represents deletion.

	D	**D**	**D**	**D**			**I**	**I**							**S**	**S**	**S**	**S**		
Woman A	bs	bs	bs	bs	1	1			2	2	2	2	3	3	4	4	4	4	5	5
					-	**-**			**-**	**-**	**-**	**-**	**-**	**-**					**-**	**-**
Women B					1	1	1	1	2	2	2	2	3	3	3	3	3	3	5	5

In the above example it costs 11 to turn A into B; four deletions, two insertions and 5 substitutions = 11. It is also clear that where insertion costs have been used, it would have been just as correct to delete the entries to turn the two sequences into each other. Which is why insertion and deletion costs are often combined and referred to as "indels". In this example I moved the sequence two events to the right by inserting to "1"'s, this also makes the two sequences of same lengths. By inserting these two, it was possible to match many of the following events. Using optimal matching, the researcher can decide to assign the same costs to all transitions like in the above example, where each transition regardless of the tool used had a cost of 1. Usually such approach only leads to satisfying results under very restrictive empirical conditions (Blanchard 2011:10) and is only used here in order to exemplify. Go to chapter 7.3. for costs estimates and considerations for this particular study.

Relaxing the importance of sequence length

With optimal matching the researcher have the ability to relax the importance of the lengths of sequences or at least its weigh in the analysis by changing the value of insertion and deletion costs (Abbott 1999, Blair-Loy 1999). Consider again the simple example of the two hypothetical women from before

Woman A **bs bs bs bs 1 1 2 2 2 2 3 3 4 4 4 4 5 5**

Women B **1 1 1 1 2 2 2 2 3 3 3 3 3 3 5 5**

For simplification purposes I sat the costs of both substitution and deletion and insertion costs to 1 in the previous example, and ended up with a final costs of 11 for transforming sequence A into B. If I choose to set deletion and insertion costs to half of substitution costs, I get other results. Practically this means insertion or deletion will in this example cost 0.5 while substituting events costs 1. Consider the following example again but now with different costs:

	D	**D**	**D**	**D**			**I**	**I**							**S**	**S**	**S**	**S**		
Woman A	bs	bs	bs	bs	1	1			2	2	2	2	3	3	4	4	4	4	5	5
Costs	*0.5*	*0.5*	*0.5*	*0.5*	-	-	*0.5*	*0.5*	-	-	-	-	-	-	*1*	*1*	*1*	*1*	-	-
Women B					1	1	1	1	2	2	2	2	3	3	3	3	3	3	*5*	*5*

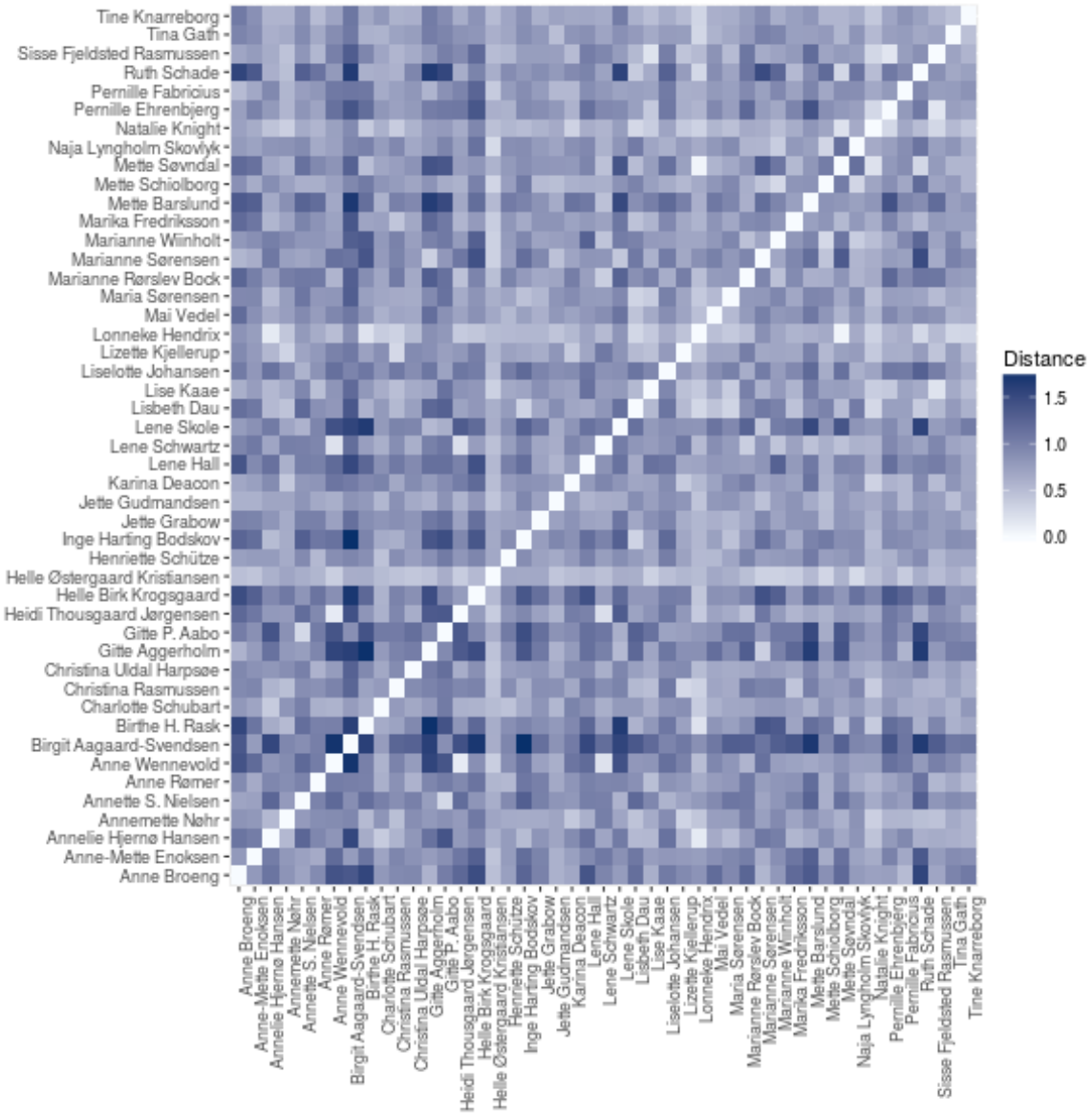
Setting the deletion and insertion costs differently than the substitution costs gives a final cost of:

$$= 4 * (0.5) + 2 * (0.5) + 4 * (1) = 7$$

If sequences are of equal length, and indels are set to any cost greater than half the largest substitutions, then indels will never be used since it will take two indels to replace a substitution. But if the sequences are of unequal length, then the size of such indels costs can help prevent the algorithm from using any more indels than needed to offset the difference in length (Blair-Loy 1999, Abbott 2000, Blanchard 2011).

Appendix D: Optimal Matching Distance Matrix

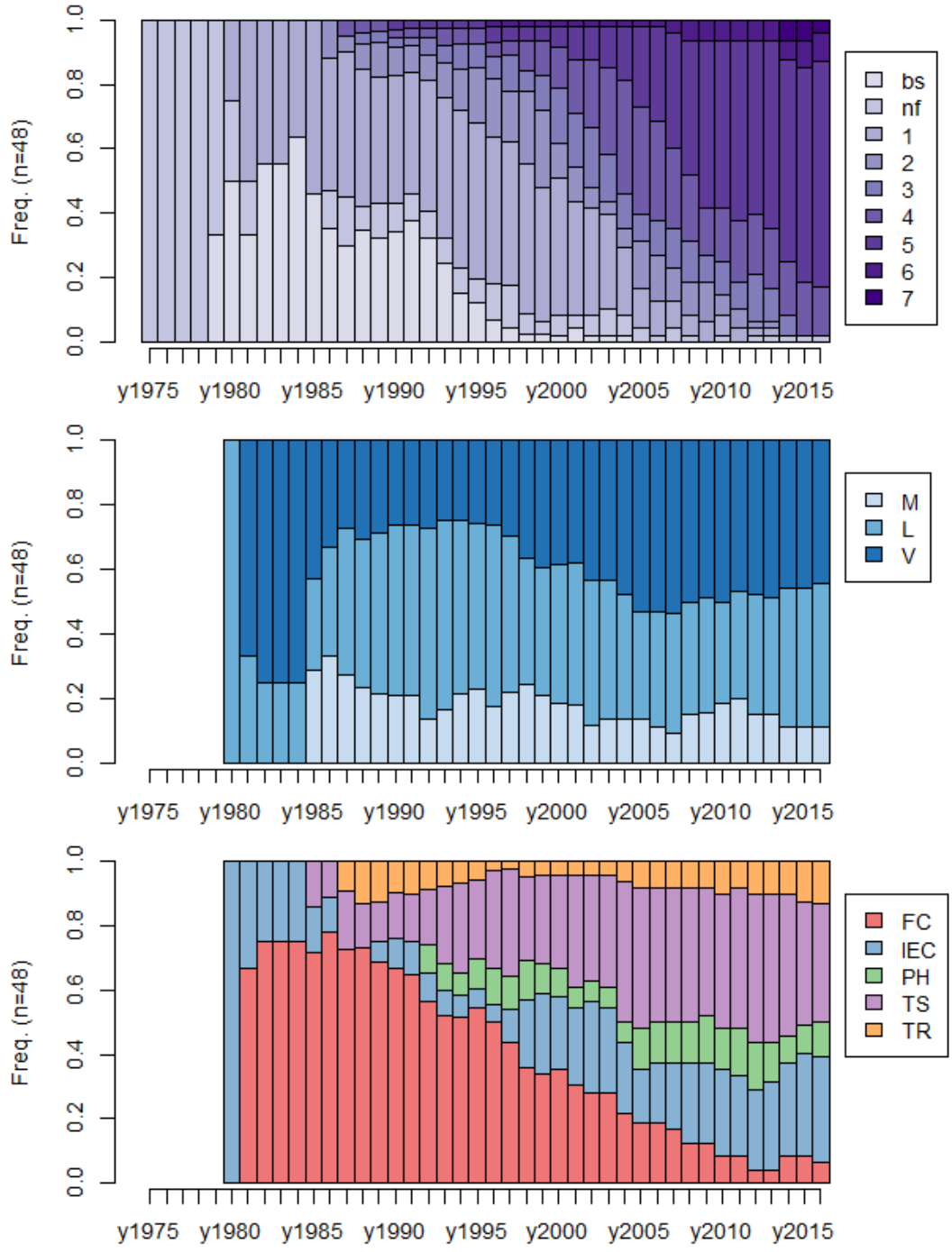
Optimal Matching Distance Matrix
Total Sample



The Optimal Matching algorithm calculates distances between all women based on the determined substitution and indel costs. Go to 7.3. for further explanations.
The Distance Matrix illustrates the distances with values form 0 to 2.

Appendix E: Optimal Matching Frequency Plots

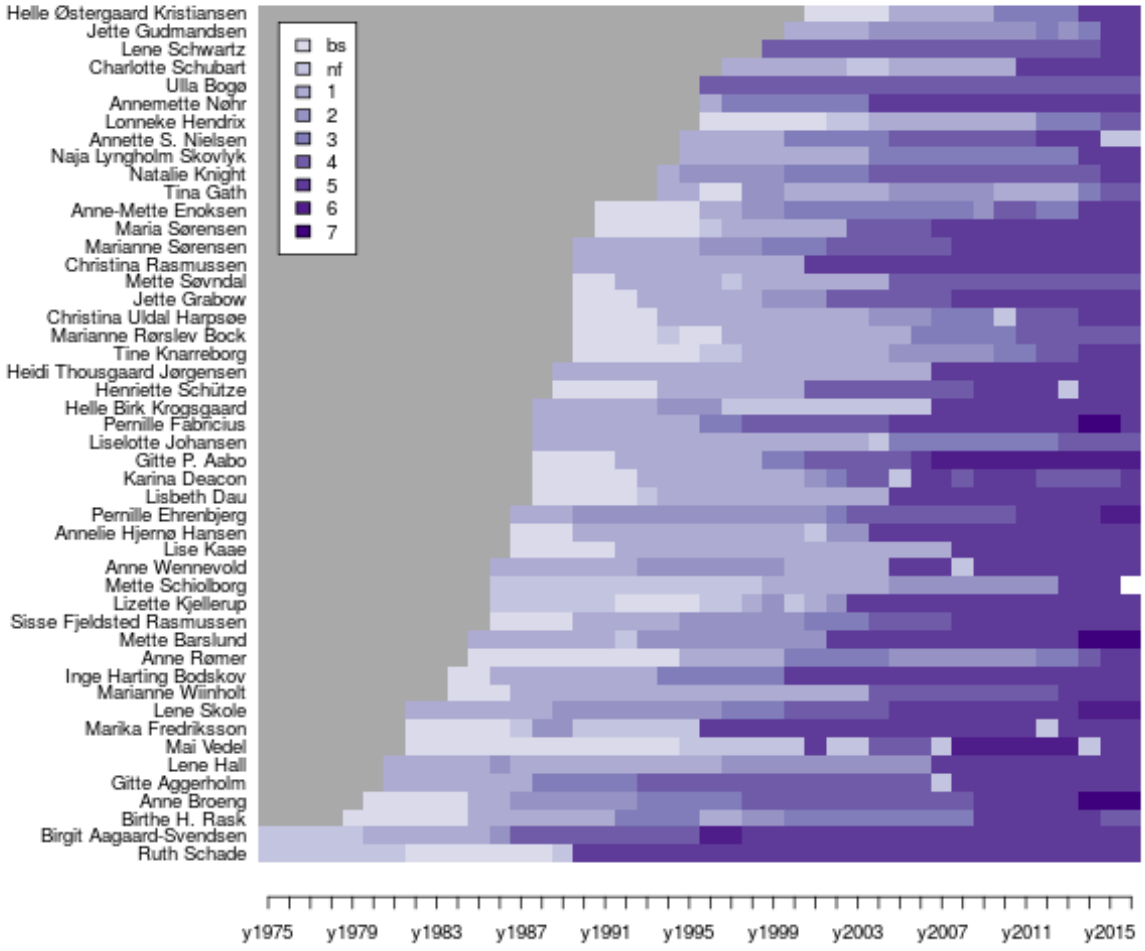
Optimal Matching Total Sample Frequency Plots
Variables: Position levels, Organisation size and industry type



Optimal Matching applied to sample in R. Total sample 47.
Organisation Sizes: Small-medium (M), Large (L), Very Large V
Industry Type: Finance & Conglomeerates (FC), Trade & Services (TS), Pharmaceuticals (PH), Industry, Energy and Construction (IEC)
Position Levels: business school (bs), non-finance position (nf), 1, 2, 3, 4, 5, 6, 7.
Go to 7.2 for further explanation

Appendix F: Optimal Matching Position Level Index Plot

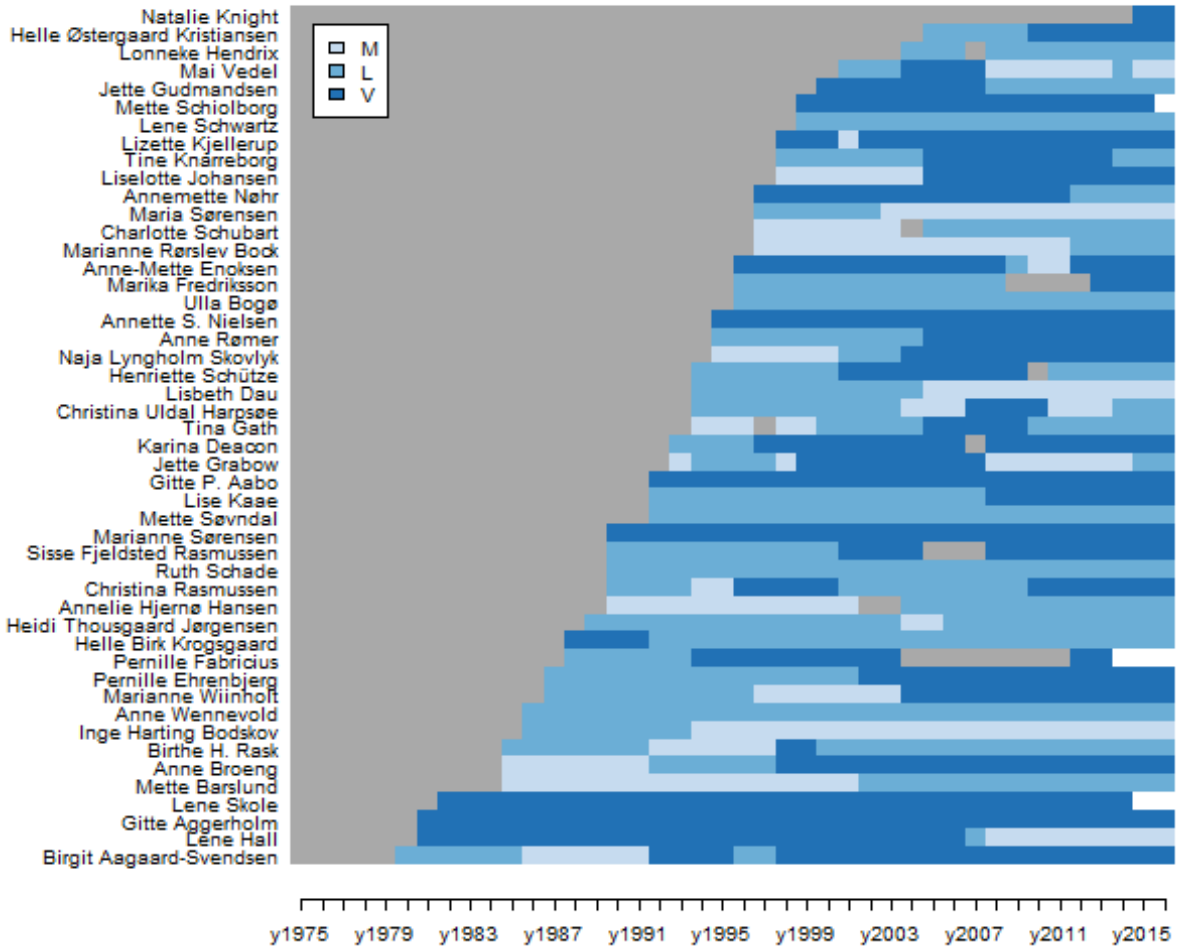
Optimal Matching Total Sample
Index Plot Position Levels



Optimal Matching applied to sample in R. *Total sample 47.*
Ordered by sequence length
Position Levels: business school (bs), non-finance position (nf), 1, 2, 3, 4, 5 (CFO), 6 (CEO), 7. Go to 7.2 for further explanations

Appendix G: Optimal Matching Organisation Size Index Plot

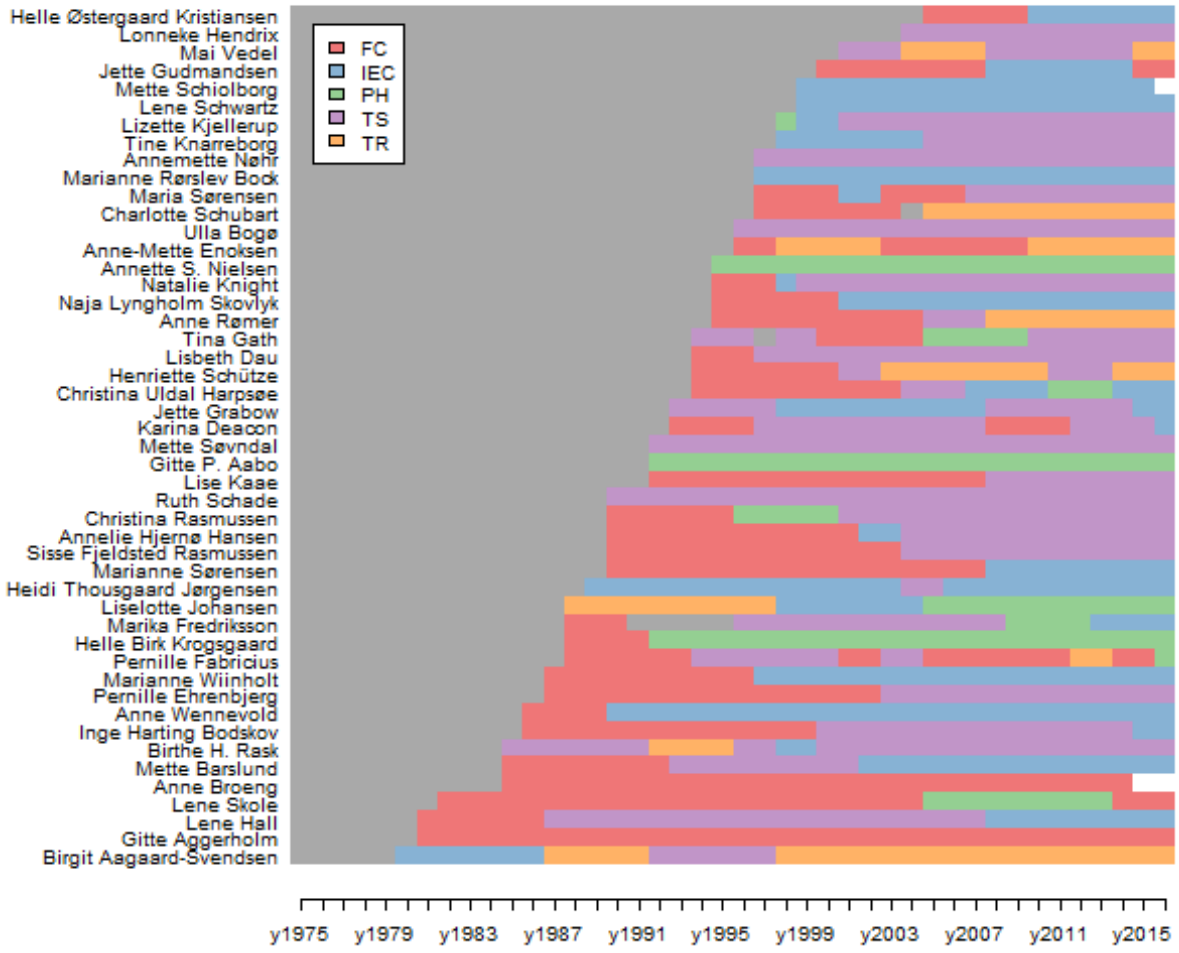
Optimal Matching Total Sample
Index Plot Organisation Size



Optimal Matching applied to sample in R. Total sample 47.
Ordered by sequence length
Organisation Sizes: Small-medium (M), Large (L), Very Large (V)
Go to 7.2 for further explanations

Appendix H: Optimal Matching Industry Type Index Plot

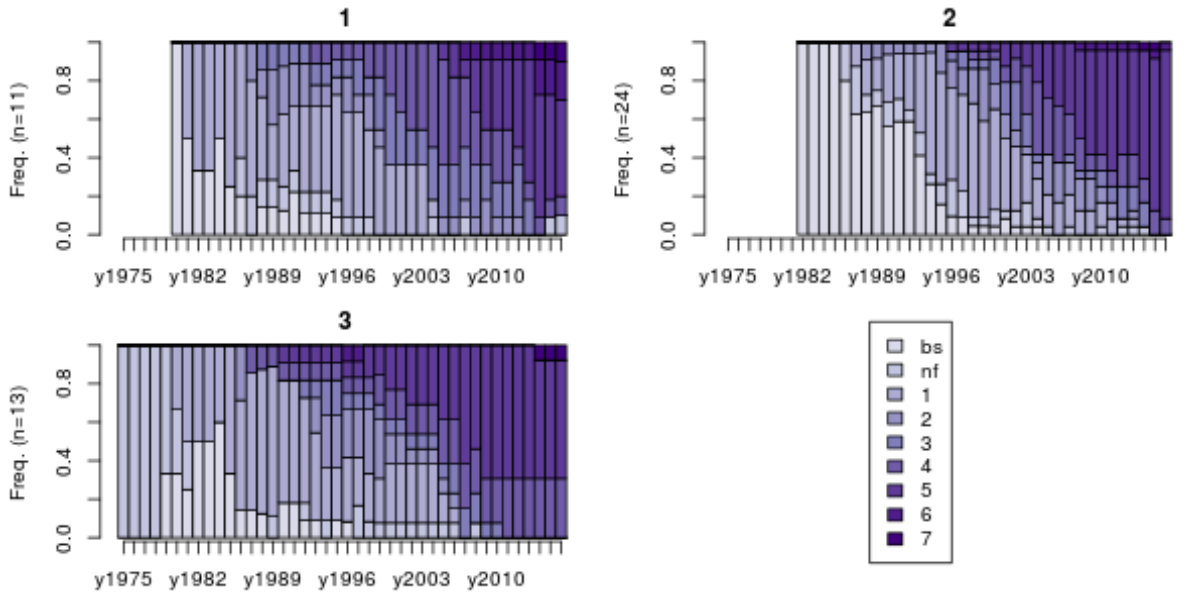
Optimal Matching Total Sample
Index Plot Industry Type



Optimal Matching applied to sample in R. Total sample 47.
Ordered by sequence length
Industry Type: Finance & Conglomeerates (FC), Trade & Services (TS), Pharmaceuticals (PH), Industry, Energy and Construction (IEC)
Go to 7.2 for further explanations

Appendix I: Cluster Analysis Position Levels Frequency Plots

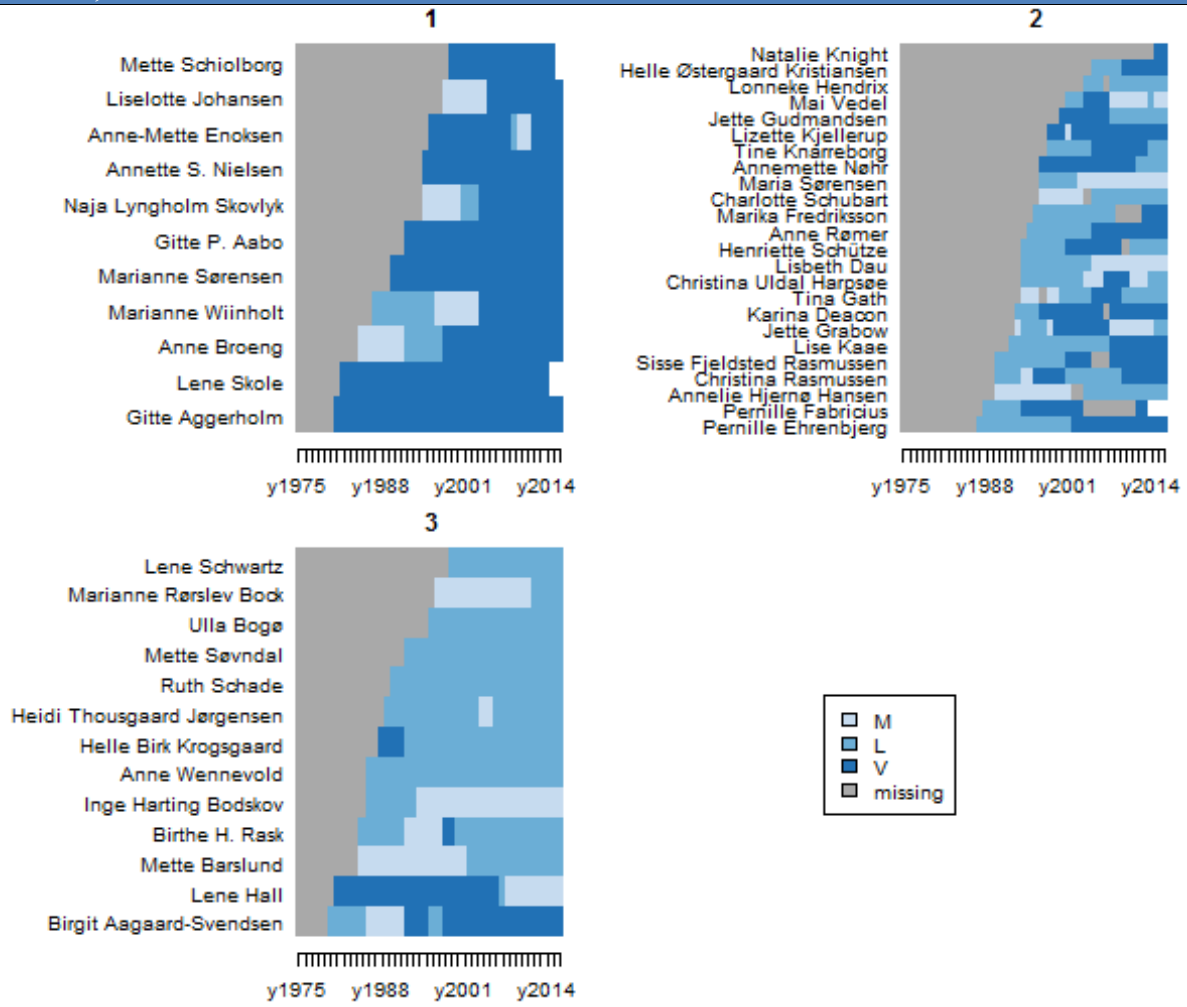
Optimal Matching Cluster Analysis
Frequency Plots Position Levels
Cluster 1, 2 and 3



Cluster Analysis using the Agglomerate Nesting algorithm
Position Levels: business school (bs), non-finance position (nf), 1, 2, 3, 4, 5 (CFO), 6 (CEO), 7.
Go to 7.2 for further explanations

Appendix J: Cluster Analysis Organisation Size Index Plots

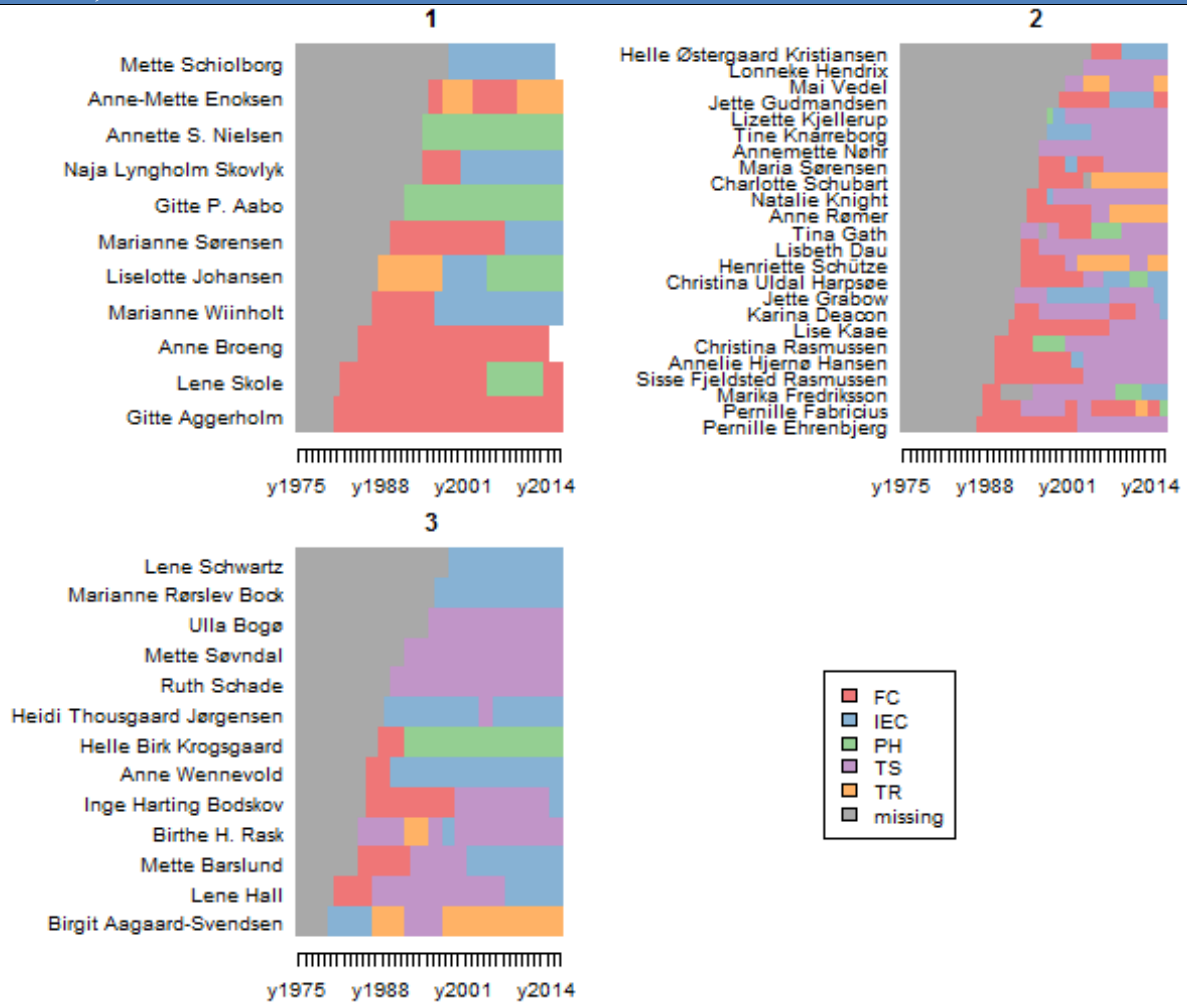
Optimal Matching Cluster Analysis
Index Plots Organisation Size
Cluster 1, 2 and 3



Cluster Analysis using the Agglomerate Nesting algorithm
Ordered by sequence length
Organisation Sizes: Small-medium (M), Large (L), Very Large (V)
Go to 7.2 for further explanation

Appendix K: Cluster Analysis Industry Type Index Plots

Optimal Matching Cluster Analysis
Index Plots Industry Type
Cluster 1, 2 and 3



Cluster Analysis using the Agglomerate Nesting algorithm
Ordered by sequence length
Industry Type: Finance & Conglomeerates (FC), Trade & Services (TS), Pharmaceuticals (PH), Industry, Energy and Construction (IEC)
Go to 7.2 for further explanations

Appendix L: R script

```
# Removing data from global environment (memory)
rm(list=ls())

# +++++++++++++++++
# Loading packages
# +++++++++++++++++
library(TraMineR)     # Sequence analysis package
library(readxl)       # Reading in Excel files
library(cluster)      # Cluster analysis such as agnes (agglomerative nesting)
library(reshape2)     # Spliting and melting data
library(RColorBrewer) # Color collections
library(ggplot2)      # For density plots of distance and transition matrices
library(mapDK)        # Map plots of Denmark

col_vec <- brewer.pal(9,"Set1")

# Function for controlling color transparency
addalpha <- function(colors, alpha=1.0) {
  r <- col2rgb(colors, alpha=T)
  # Apply alpha
  r[4,] <- alpha*255
  r <- r/255.0
  return(rgb(r[1,], r[2,], r[3,], r[4,]))
}


# +++++++++++++++++++++++++++++++++++++++++++++++++
# Loading data, data cleansing and manipulation
# +++++++++++++++++++++++++++++++++++++++++++++++++

# Loading data
sheet1          <- read_excel(path = "data/Data CFOs.xlsx", sheet = 1)
sheet2          <- read_excel(path = "data/Data CFOs.xlsx", sheet = 2)
sheet3          <- read_excel(path = "data/Data CFOs.xlsx", sheet = 3)
sheet4          <- read_excel(path = "data/Data CFOs.xlsx", sheet = 4)

# Exclude observations
exclude         <- c("Birgitte Lund",
                     "Heidi Schütt Larsen",
                     "Kristin Muri Møller",
                     "Lone Kolin",
                     "Marianne Schelde",
                     "Ulla Bogø¸",
                     "Vibeke Dalsten",
                     "Elsa Lund Larsen")
```

```
sheet2            <- sheet2[-which(sheet2$NAME %in% exclude),]
sheet2            <- droplevels(sheet2)

person.data       <- sheet1[-which(sheet1$`Name of CFO` %in% exclude),]
person.data       <- person.data[order(person.data$`Name of CFO`),]

# Importing transmissioncosts
trans.cost.size   <- read.csv(file = "data/org_matrix.csv", dec = ".")
trans.cost.level  <- read.csv(file = "data/pos_matrix.csv", dec = ".")

rownames(trans.cost.size)   <- trans.cost.size[, 1]
rownames(trans.cost.level)  <- trans.cost.level[, 1]

trans.cost.level            <- trans.cost.level[, -1]
trans.cost.size             <- trans.cost.size[, -1]

colnames(trans.cost.level)  <- rownames(trans.cost.level)
colnames(trans.cost.size)   <- rownames(trans.cost.size)

# Cleaning sequence data
is.char             <- sapply(sheet2, is.character)
sheet2[, is.char]   <- apply(sheet2[, is.char], 2, trimws)
sheet2[sheet2 == "NA"] <- NA
sheet2$COMMENTS     <- NULL

# Splitting up sequence data on types
types               <- split(sheet2, f = sheet2$TYPE)
sapply(types, function(x) length(table(x$VALUE) ))
sapply(types, function(x) sum(is.na(x$VALUE) ))

# Renaming Organisation size to numerical values
types$`Organisation Size`$VALUE[types$`Organisation Size`$VALUE == "Very Large"]
<- 3
types$`Organisation Size`$VALUE[types$`Organisation Size`$VALUE == "Large"]          <- 2
types$`Organisation Size`$VALUE[types$`Organisation Size`$VALUE == "Small-medium"]
<- 1

# Defining function for transforming data.frame to TraMineR sequence object
from.type.to.sequence <- function(x, pvar){
  x$TYPE            <- NULL
  labels            <- levels(as.factor(x$VALUE))
  states            <- 1:length(labels)
  seq               <- seqdef(x, var = c("NAME", "VALUE", "START", "END"),
                              states = states, labels = labels, informat = "SPELL", process = FALSE,
                              begin = "START", end = "END", status = "VALUE", id =
unique(x$NAME))
  seq
}
```

```
# Making sequence objects
seq.types    <- lapply(types, from.type.to.sequence)
seq.industry <- seq.types$Industry
seq.size     <- seq.types$`Organisation Size`
seq.level    <- seq.types$`Position Level`

# Renaming alphabet in sequences
re           <- list("bs" = 8, "nf" = 9)
seq.level    <- seqrecode(seq.level, recodes = re)

re           <- list("M" = 1, "L" = 2, "V" = 3)
seq.size     <- seqrecode(seq.size, recodes = re)

re           <- list("FC" = 1, "IEC" = 2, "PH" = 3,"TS" = 4,"TR"= 5)
seq.industry <- seqrecode(seq.industry, recodes = re)

# ++++++++++++++++++++
# Descriptive analysis
# ++++++++++++++++++++

# Mean time in each state
# -----------------------
tab <- seqmeant(seq.level)
write.csv(tab,"./output/level_mean_state_time.csv")

tab <- seqmeant(seq.size)
write.csv(tab,"./output/size_mean_state_time.csv")

tab <- seqmeant(seq.industry)
write.csv(tab,"./output/industry_mean_state_time.csv")

# Transition rate matrices
# ------------------------
col <-brewer.pal(9,'Blues')

tab <- seqtrate(seqdss(seq.level))
mel_tab <- melt(tab)
png("./plots/transition_matrix_level.png", w=400, h=300) # exporting graphic as PNG-file
ggplot(data = mel_tab, aes(x=Var1, y=Var2,fill=value)) +
  labs(x="",y="") +
  geom_tile() +
  geom_text(aes(fill = mel_tab$value, label = round(mel_tab$value, 2)),size=3) +
  scale_fill_gradient(low = col[1], high = col[9],  space = "Lab", name="Transition rate") +
  theme(axis.text.x = element_text(angle = 90, hjust = 1))
dev.off()
write.csv(tab,"./output/transition_matrix_level.csv")

tab <- seqtrate(seqdss(seq.size))
mel_tab <- melt(tab)
```

```
png("./plots/transition_matrix_size.png", w=400, h=300)
ggplot(data = mel_tab, aes(x=Var1, y=Var2,fill=value)) +
  labs(x="",y="") +
  geom_tile() +
  geom_text(aes(fill = mel_tab$value, label = round(mel_tab$value, 2)),size=3) +
  scale_fill_gradient(low = col[1], high = col[9],  space = "Lab", name="Transition rate") +
  theme(axis.text.x = element_text(angle = 90, hjust = 1))
dev.off()
write.csv(tab,"./output/transition_matrix_size.csv")

tab <- seqtrate(seqdss(seq.industry))
mel_tab <- melt(tab)
png("./plots/transition_matrix_industry.png", w=400, h=300)
ggplot(data = mel_tab, aes(x=Var1, y=Var2,fill=value)) +
  labs(x="",y="") +
  geom_tile() +
  geom_text(aes(fill = mel_tab$value, label = round(mel_tab$value, 2)),size=3) +
  scale_fill_gradient(low = col[1], high = col[9],  space = "Lab", name="Transition rate") +
  theme(axis.text.x = element_text(angle = 90, hjust = 1))
dev.off()
write.csv(tab,"./output/transition_matrix_indusrty.csv")


# Frequency counts of distinct sub-sequences
# ------------------------------------------
seqtab(seqdss(seq.level))
seqtab(seqdss(seq.size))
seqtab(seqdss(seq.industry))

# Frequency plot - all obs.
# -------------------------
png("./plots/freq_all.png", w=600, h=800)
par(mar=c(2.5,4,1,3.5), mfrow=c(3,1), xpd=T,cex=1.2)
col <- colorRampPalette(brewer.pal(9,'Purples')[3:9])(9)
seqdplot(seq.level,cpal=col,withlegend=F)
legend(43,0.9,alphabet(seq.level),fill=col)
col <- colorRampPalette(brewer.pal(9,'Blues')[3:7])(3)
seqdplot(seq.size,cpal=col,withlegend=F)
legend(43,0.9,alphabet(seq.size),fill=col)
col <- addalpha(brewer.pal(5,'Set1'), 0.6)
seqdplot(seq.industry,cpal=col,withlegend=F)
legend(43,0.9,alphabet(seq.industry),fill=col)
dev.off()

png("./plots/freq_level.png", w=600, h=266)
par(mar=c(2.5,4,1,3.5), mfrow=c(1,1), xpd=T,cex=1.2)
col <- colorRampPalette(brewer.pal(9,'Purples')[3:9])(9)
seqdplot(seq.level,cpal=col,withlegend=F)
abline(v=33.5,lwd=2)
```

```
text(35.5,0.65, 2008,col="white")
legend(43,0.9,alphabet(seq.level),fill=col)
dev.off()

# Index plots - all obs.
# ----------------------
png("./plots/index_level_all.png", w=600, h=500)
par(mar=c(2.5,13,1,1), mfrow=c(1,1), xpd=T,cex=0.8)
col <- colorRampPalette(brewer.pal(9,'Purples')[3:9])(9)
seqIplot(seq.level,cpal=col, ytlab="id",withlegend=F,
        sortv="from.start",yaxt="n",ylas=1,ylab="")
legend(1,47,alphabet(seq.level),fill=col)
dev.off()

png("./plots/index_size_all.png", w=600, h=500)
par(mar=c(2.5,13,1,1), mfrow=c(1,1), xpd=T,cex=0.8)
col <- colorRampPalette(brewer.pal(9,'Blues')[3:7])(3)
seqIplot(seq.size,cpal=col, ytlab="id",withlegend=F,
        sortv="from.start",yaxt="n",ylas=1,ylab="")
legend(1,47,alphabet(seq.size),fill=col)
dev.off()

png("./plots/index_industry_all.png", w=600, h=500)
par(mar=c(2.5,13,1,1), mfrow=c(1,1), xpd=T,cex=0.8)
col <- addalpha(brewer.pal(5,'Set1'), 0.6)
seqIplot(seq.industry,cpal=col, ytlab="id",withlegend=F,
        sortv="from.start",yaxt="n",ylas=1,ylab="")
legend(1,47,alphabet(seq.industry),fill=col)
dev.off()

# +++++++++++++++++
# Cluster analysis
# +++++++++++++++++

# Calculating multivariate sequence distances
# -------------------------------------------

# Transmission costs
cost.trate.level    <- seqsubm(seq.level, method = "TRATE", with.missing = TRUE, miss.cost =
0)
cost.trate.size     <- seqsubm(seq.size, method = "TRATE", with.missing = TRUE, miss.cost =
0)
cost.trate.industry <- seqsubm(seq.industry, method = "CONSTANT", with.missing = TRUE,
miss.cost = 0, cval = 1)
cost.list           <- list(as.matrix(trans.cost.level), as.matrix(trans.cost.size),
as.matrix(cost.trate.industry))

# Calculating Optimal matching distance
```

```
distances           <- seqdistmc(channels = list(seq.level, seq.size, seq.industry), method = "OM",
with.missing = T, norm = TRUE, miss.cost = 0,
                          sm = cost.list, indel = 0.5)

# Adding names to distance matrix
names <- rownames(seq.level)
dimnames(distances) <- list(names, names)

write.csv(distances, file = "output/distance_matrix.csv")

# Plot distance matrix
melted_dist <- melt(distances)
col_blues <- brewer.pal(9,'Blues')
png("./plots/distance_matrix.png", w=600, h=600)
ggplot(data = melted_dist, aes(x=Var1, y=Var2,fill=value)) +
 labs(x="",y="") +
 geom_tile() +
 scale_fill_gradient(low = col_blues[1], high = col_blues[9],  space = "Lab", name="Distance")
+
 theme(axis.text.x = element_text(angle = 90, hjust = 1))
dev.off()

# Identifying clusters
# --------------------
cluster <- agnes(distances, diss=T, method="average")
# Running the Agglomerative Nesting algorithm from Kaufman & Rousseeuw (1990),
# where the distance between sequences is determined by the multidimensional
# distance metric, as defined by the optimal matching algorithm with
# predefined susbstituion cost.

# The method "average" defines the distance between clusters as the average
# distance between all points in each of the two clusters.

clus_3  <- cutree(cluster, k = 4)
clus_3[clus_3==4] <- 3 # Adding Birgit Aagaard-Svendsen to cluster 3

# Plotting dendogram
# ------------------

# Redifining agnes-object as dendogram-object for easy plotting
hc_cluster <- as.hclust(cluster)
dendro <- as.dendrogram(hc_cluster)

# Function for adding color to dendogram cluster branches
colbranches <- function(n, col)
{
 a <- attributes(n) # Find the attributes of current node
 # Color edges with requested color
 attr(n, "edgePar") <- c(a$edgePar, list(col=col, lwd=2))
```

```
  n
}

# Coloring the branches
dendro[[1]] = dendrapply(dendro[[1]], colbranches, col_vec[1])
dendro[[2]][[1]] = dendrapply(dendro[[2]][[1]], colbranches, col_vec[3])
dendro[[2]] = dendrapply(dendro[[2]], colbranches, col_vec[2])

png("./plots/dendrogram.png",w=600,h=600)
par(mar=c(0,0,0,12),cex=0.85)
plot(dendro,horiz=T, yaxt="n")
dev.off()


# Frequency plots accross clusters
# --------------------------------
png("./plots/freq_cluster_position.png", w=600, h=300)
par(mar=c(2.5,4,2,1), mfrow=c(3,1), xpd=T,cex=1.2)
col <- colorRampPalette(brewer.pal(9,'Purples')[3:9])(9)
seqdplot(seq.level,group = clus_3,cpal=col,withlegend=T)
dev.off()

png("./plots/freq_cluster_size.png", w=600, h=300)
par(mar=c(2.5,4,2,1), mfrow=c(3,1), xpd=T,cex=1.2)
col <- colorRampPalette(brewer.pal(9,'Blues')[3:7])(3)
seqdplot(seq.size,group = clus_3,cpal=col,withlegend=T)
dev.off()

png("./plots/freq_cluster_industry.png", w=600, h=300)
par(mar=c(2.5,4,2,1), mfrow=c(3,1), xpd=T,cex=1.2)
col <- addalpha(brewer.pal(5,'Set1'), 0.6)
seqdplot(seq.industry,group = clus_3, cpal=col,withlegend=T)
dev.off()


# Index plots accross clusters
# ----------------------------
png("./plots/index_level_cluster.png", w=600, h=500)
par(mar=c(2.5,13,1,1), mfrow=c(1,1), xpd=T,cex=0.8)
col <- colorRampPalette(brewer.pal(9,'Purples')[3:9])(9)
seqIplot(seq.level,cpal=col,group=clus_3, ytlab="id",withlegend=T,
        sortv="from.start",yaxt="n",ylas=1,ylab="")
dev.off()

png("./plots/index_size_cluster.png", w=600, h=500)
par(mar=c(2.5,13,1,1), mfrow=c(1,1), xpd=T,cex=0.8)
col <- colorRampPalette(brewer.pal(9,'Blues')[3:7])(3)
seqIplot(seq.size,cpal=col,group=clus_3,ytlab="id",withlegend=T,
        sortv="from.start",yaxt="n",ylas=1,ylab="")
```

```
dev.off()

png("./plots/index_industry_cluster.png", w=600, h=500)
par(mar=c(2.5,13,1,1), mfrow=c(1,1), xpd=T,cex=0.8)
col <- addalpha(brewer.pal(5,'Set1'), 0.6)
seqIplot(seq.industry,cpal=col,group=clus_3,ytlab="id",withlegend=T,
        sortv="from.start",yaxt="n",ylas=1,ylab="")
dev.off()

# Plot on map
# ----------
zip.data <- as.data.frame(table(person.data$`Postal code (private)`))
png("./plots/map_zip_code.png",w=600,h=400)
mapDK(values = "Freq", id = "Var1", data = zip.data,detail="zip")
dev.off()


# References
# ----------
# Kaufman & Rousseeuw (1990) - Kaufman, L. and Rousseeuw, P.J. (1990), Finding Groups in
Data: An Introduction to Cluster Analysis. Wiley, New York.
```

Appendix M: Berlingske List

Birgitte Erhardtsen
Berlingske Resarch 2012
Women CFOs in top1000 companies

Kvindelige CFO's

Gerlinde Emma Sturm, Siemens Wind Power, udnævnt maj 2012

Pernille Lyngvold Erenbjerg, TDC, statsaut. revisor, udnævnt 2011

Anne Broeng, PFA, cand. oecon, udnævnt 2010

Gitte Minet Aggerholm, Nordea Liv & Pension, udnævnt 2008

Lene Skole, shipping-udd. hos Mærsk, HD

Annette S. Nielsen, Leo Pharma, merkonom og HD, udnævnt 2012

Birgit Aagaard-Svendsen, J. Lauritzen, ingeniør og HD, udnævnt 1998

Lise Kaae, Bestseller, statsaut. revisor, udnævnt 2009

Helle Birk Krogsgaard, Statens Serum Institut, cand. merc. og HD, udnævnt 2007.

Marianne Bock, Brdr. Hartmann, statsaut. revisor, udnævnt 2012,

Sisse Fjeldsted Rasmussen, Scandinavian Tobacco Group, statsaut. revisor, udnævnt 2010

Charlotte Schubart, DHL Express, statsaut. revisor, udnævnt 2011

Henriette Schütze, Georg Jensen, statsaut. revisor, udnævnt 2011

Anne Marie Wennewold, Colas Danmark, udnævnt 2009

Birgitte Rasmussen, Plus Pack, cand. oecon, udnævnt 2004

Charlotte Vincents, Roskilde Forsyning Holding, HD, udnævnt 2011

Mette Søvndal Petersen, Estee Lauder Cosmetics, udnævnt 2005

Lizette Kjellerup, SOS International, udnævnt 2003

Ulla Bogø, Berendsen Textil Service, HA og HD, udnævnt 2004

Obtained personally from Birgitte Erhardtsen.
Research made for article "Kvinderne myldrer in på CFO-kontorerne" in Business Sønda,g published November 10, 2012.