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Impact of Managerial Incentives on Cost Stickiness in Swedish Listed Firms

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Abstract

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- Keywords: Cost Stickiness, Motivation, Managerial Incentives, Cost Structure Management Accounting Decision.
- Purpose: The paper investigates the impact of motivation on cost stickiness in Swedish listed firms. It seeks to examine whether asymmetric costs are exhibited when managers are motivated to meet or beat earnings.
- Methodology: Quantitative approach is employed to interpret the results from an unstructured data set.
- Theoretical Perspectives: Economic Theory, Agency Theory
- Empirical foundation: A sample of 192 firms with time period 2014-2018
- Conclusions: We conclude that asymmetric cost behaviour can be found in Swedish listed firms. It was however observed that despite this, motivation or managerial incentives do not serve as a factor to cost stickiness. This therefore raises the question as to whether other explanatory variables serve as an influence to this cost stickiness.

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1. Introduction

This chapter provides a background to the study and reports the problematization, purpose and research questions. It presents an introduction to the concept of cost asymmetry and managerial incentives to cost stickiness. It further provides the importance of this study to the Swedish context. Finally, the organization of the rest of the study is described at the end of this chapter.

1.1 Background

Cost management decisions remain one of the important aspects in management accounting. This is because a comprehensive analysis of costs and an estimation of work efficiency provide a solid basis for financial control (Lepădatu & Gheorghe, 2012).

Traditional cost models assume that cost change proportionally with an increase or decrease in sales however studies by Cooper and Kaplan (1992) and Noreen and Soderstrom (1997) dispel that notion with the conclusion that cost models may show an asymmetric pattern across sales increase and sales decrease. Dalla Via & Perego (2014) further refer to this as “sticky costs” and explains that costs grow more with activity volume growth than they fall with a same amount of decrease. In other words, the amount of change in costs is not equal for the same magnitude of increase or decrease in sale amount (Anderson, Banker & Janakirman, 2003).

When customers demand rise more than an organizations capacity and resources, managers feel pressured to make adjustments to adapt to the increased demand so as to increase profit and customer satisfaction. This forces them to make and apply quick decisions; however they do not feel this obligation to cut costs as soon as possible when demand declines. In times of demand decline, managers may be optimistic about future increment in demand and will prefer to keep some extra resources and employees to avoid additional expenses in future. This is the start point of cost stickiness which is dependent on managerial decisions (Anderson et al, 2003).

It is believed that management decisions on cost are sometimes impacted by incentives and are driven by behavioural aspects. Chen, Lu, and Sougiannis (2012) investigated whether the agency

problem could be a determinant of the asymmetric cost behaviour and concluded that managers engage in ‘empire building’, leading to the firm growing beyond the optimal size for managerial private interests. By using compensation structure to capture empire-building incentives, they find evidence supporting a positive association between the asymmetric cost behaviour and managers’ empire building incentives.

Also according to Li, Y.H. (2018), in order to show a good profitability, companies which implement private equity placement will cut more costs when revenue declines. Reducing cost is a measure of good performance by management however; the rate at which cost is reduced can be influenced if incentives are in place for managers. This often happens if revenue declines therefore putting pressure on management to cut costs.

Silva, Zonatto and Magro (2019) concluded that companies with a fall in sales that cannot reduce their costs in the same proportion may present the earnings management evidence that refers to the opportunist behaviour of the manager, when in fact, it is partly just an asymmetry of costs. They therefore proposed further studies to develop the proposition of new models to consider the adherence of the quality of the accounting information to the asymmetric behaviour of costs.

1.2 Problematization

The decision a manager makes tends to have an effect on the organisation as a whole. Managers are capable of controlling resources, tools, techniques, procedures and employees amongst others therefore their decisions are useful to the operating performance of the organisation. (Your Article Library, 2019)

Often times, the environment, personal attitude and even small conversations can change people’s decision. This cause and effect relationship between decision making and external or internal changes have been an interesting subject for research in many fields such as: psychology, economics and consumer behaviour in the past 30 years (Mantel, Tatikonda & Liao 2006). Several factors such as motivation, personal relevance, managers’ ego, bonus and compensations, targets and budgeting plans usually have an influence on managers and serve as a motivating factor to their decision making. (Jankensgard, 2018; Mantel et al, 2006).

The objectives for most organisations are increase in growth, profitability and reduction of cost of goods sold. These objectives are achieved by way of planning, sound decision making, control and access to relevant and reliable information (Zanjirdar, Ashtiani & Madahi, 2014)

According to Mantel et al (2006), managers tend to use familiar, easy to access and easy to imagine data and information. When confronted with a new situation, managers face difficulties due to guessing and failing to adjust to information or from the reliance on initial hypothesis. They are exposed to overestimation or underestimation of some parts of information and end up with a wrong conclusion. In other words, managers are interested in using available information and simplifying them to come up with an easy manageable decision in complex situations which is more acceptable rather than an optimal decision.

Anderson, Banker and Janakiraman (2003), hereafter ABJ, state that “understanding cost behaviour is essential to cost and management accounting”. If we ignore the cost stickiness and consider the behaviour of costs as a function of activity volume, not activity direction, it would lead us to a wrong evaluation of managers and company’s performance. Due to sticky cost behaviour, managers’ good performance might be undervalued in the short term however; the use of long term monitoring will disguise the degree of deliberations of their decisions. Management accountants and financial analysts choose methods such as the ABC costing method, cost analysis, volume and profit directly based on their estimation and forecast of cost behaviour (Zonatto, Margo, Santana & Padilha, 2018).

Kama and Weiss (2013), believe that the incentive to achieve predetermined targets make managers motivated to cut costs even if it is not in line with value creation for the company in long run. In another study, Angelova, Giebe and Stenzel (2018), state that higher incentives lead to higher effort but not necessarily higher performance. Therefore, it is important for owners, shareholders and stakeholders to check out whether the decisions of managers’ burden costs on the organization and whether or not it is value destroying. Further to this, there is a contradiction between results published by Kama & Weiss and ABJ’s study. Kama and Weiss believe that agency-driven incentives decrease the degree of cost stickiness whereas ABJ concludes that incentives lead to increase in sticky costs (Kama & Weiss, 2013).

1.3 Purpose of study

This paper contributes to the literature on asymmetric cost behaviour to investigate the impact of motivation on cost stickiness in Swedish listed firms. Prior research provides evidence that corporate governance (Chen et al. 2012), firm size (Anderson et al. 2003; Via and Perego 2014), industry (Subramaniam and Weidenmier 2003; Via and Perego 2014), labour market (Banker and Chen 2006; Banker, Byzalov & Chen, 2013), and employee intensity (Anderson et al. 2003) affect sticky cost behaviour. This study seeks to add to the literature on asymmetric cost behaviour by examining whether asymmetric costs are exhibited when managers are motivated to meet or beat earnings in Swedish Listed Companies over the period of 2014 to 2018

As a supplement to Kama and Weiss (2013) study, this paper links resource adjustments to managers' intentions and provides a different view for financial managers towards traditional management accounting by combining cost structure and earning management. This leads to an expansion of real earning management literature as well as typical management accounting research in the Swedish context.

Conducting a study in Sweden is important as the majority of previous empirical work on cost behaviour was carried out using United States (US) data as studied by Bugeja, Lu & Shan (2015). There are reasons to expect that US results will not hold in Sweden because of significant variations between Sweden and the US as regards to the corporate governance environment (Lubatkin, Lane & Collin, 2005) and managers perception of short-termism (Esbjörn,2000). Secondly, The Swedish governance setting has more concentrated ownership structure as compared to the USA and other economies which are more diluted. (Angblad, Högfeldt & Svancar, 2001). This study therefore attempts to fill this gap in the literature.

1.4 Research Question

To examine the cost behaviour when managers feel pressured to meet earning targets in a context characterized by Sweden, we are guided by the research question below:

- Do resource adjustments made in order to meet earnings target decrease cost stickiness?

- When there is a decrease in sales, do managers omit expenses more aggressively if they have incentive to meet earning targets rather than when there are no predetermined targets?

1.5 Organisation of the Study

This study is organized into six main chapters as the following.

Chapter 1 presents an introduction to the study, research background, problematization, purpose of the study, research question and organization of the study.

Chapter 2 focuses on the literature review on previous studies where theories and the concepts of cost structure were studied in depth. This leads to a discussion of an appropriate hypothesis in the subsequent chapter.

Chapter 3 covers the research methodology which elaborates further on the hypothesis, selection of samples and time frame. The data collection as well as data analysis techniques used are also discussed. The limitations to the study have also been presented.

Chapter 4 subsequently discusses thoroughly on the research findings, results which are inclusive of descriptive statistics and summary of research regression results.

Chapter 5 discusses the major findings and practical implications of the study.

Chapter 6 concludes the entire research by presenting a summary of findings and suggestions for future research

2. Theory and Empirical studies

This chapter discusses the theory relevant to our study and introduces results from previous empirical studies. The logic is to provide basic understanding of the topic under study. The theory and previous empirical studies will form the basis for our hypotheses and further discussion and analysis of results. This chapter briefly summarises the current literature based on the organisational level because recent empirical studies focus on firm-specific factors that explain the magnitude of sticky costing. It further delves into the individual level based on a cross sectional study.

2.1 Theories and Cost behaviour

The premise of Management accounting research is based on economic theory and Mensah, Hwang and Wu (2004) estimate that nearly every second article published in Accounting journals between 1986 and 2000 is related to this theory, which stipulates that a firm is characterized by an objective function that represents either a single decision maker or the results of interactions among stockholders, trustees and managers and hypothesis that profit maximisation is the sole objective of business firms (Gray, Bradford H, 1986). This theory has faced criticism for its key assumptions regarding profit maximization as the sole objective of firms (Gray Bradford H, 1986) and also decision making by rational and profit maximising individuals, limited uncertainty and available information (Bromwich 2007; Smith 2015). Despite these criticisms this theory has proven to be a powerful framework for empirical relationships and according to Bromwich (2007), this theory satisfies the fundamental objective of organisations as seeking to maximise the overall efficiency and long term sustainability of firms. Bromwich (2007) further points that management accounting research mainly focuses on the optimum allocation of resources where firm-specific solutions to profit maximisation problems are referred to a cost function of an organisation. Cost stickiness researchers therefore frequently embrace economic theory to underpin their hypotheses (Hoffmann, 2017).

The traditional cost function assumes a linear relationship with fixed and variable costs which are identical for increasing and decreasing with activity levels. It is seen as independent from directions of activity and from management decision on the committed resources (Balakrishnan et al. 2011 as cited in Guenther, Riehl & Rößler 2014). Brasch (1927) questioned this cost

behaviour and concluded that there was a difference in the cost curve for decreasing and increasing activity levels. This asymmetric cost behaviour has been discussed extensively in the 21st Century with most studies basing their research on ABJ's model. The recent models of asymmetric cost behaviour hypothesize that manager influence resource adjustments resulting in asymmetric cost behaviour. ABJ's analysis compares the traditional cost behaviour with an alternative model and concludes that sticky costing occurs when managers deliberately adjust the resources committed to activities in response to changes in volume. According to Dierynck et al (2012), ABJ's model have motivated research in cost asymmetry into three dimensions namely; the link between variables that influence adjustment costs and the degree of cost asymmetry, the moderating influence of structural factors on the degree of cost asymmetry and a less explored area involves the impact of managerial incentives on cost asymmetry. Hoffmann (2017) further classifies these dimensions into (1) external effects beyond the organization, (2) firm-specific effects within the organization, (3) effects on the sub-unit level of the organization, and (4) effects that arise on the individual level.

Pamplona, Fiirst, silva & Zonatto (2016) studied the cost behaviour of largest companies in Mexico, Chile and Brazil by considering the ratio of total costs to net sales revenue. The results showed asymmetrical behaviour in all countries which is compatible with cost stickiness approach but the difference between these ratios proved that macroeconomic factors have an influential role in cost behaviour.

In the UK and the US, the common-law system of corporate governance puts emphasis on the notion of shareholder maximisation and on the role of the stock market as a means of achieving that objective. The stock market serves as a corporate control mechanisms through which underperforming management are disciplined. This puts a lot of pressure on management in US companies to make decisions that will benefit stakeholders. Due to this, Calleja, Steliaros and Thomas (2006) researched that Cost are less sticky in the USA as compared to other European countries due to managerial oversight.

Sweden is also seen to have different cultural values than the USA. The values such as low power distance, egalitarianism, collective responsibility, and cooperation have been suggested as

shaping national institutions in Sweden are significantly different from those associated with the USA (Czarniawska-Joerges 1993).

Furthermore, the Swedish governance setting has a more concentrated ownership structure as compared to the USA and other economies which are more diluted. (Angblad et al,2001). With this, it has been noted that Swedish governance mechanisms do not fall neatly within, nor between, the classic agency theory principals (Lubatkin et al, 2005).

As such, the amount of information asymmetry that arises in US public organizations due to separation of ownership and control, and which also represents a core agency theory assumption, has less relevance in Swedish organizations (Lubatkin et al, 2005)

Also, Esbjörn (2000) study shows that managers in major Swedish groups feel far less pressure from the stock market to perform in the short run, than their U.S. counterparts. Swedish managers are seen to often have a more control of their decisions than Anglo-Saxon managers, and perhaps this orientation will not change until Swedish managers feel a real threat from the stock market.

2.2 Managerial Incentives

Companies have the mandate to beat or meet zero earnings to avoid negative effects such as prevention of dividend payment and the issuance of going concern opinions. This mandate lies upon managers to ensure that the firm is able to reach this goal.

Mindful of the zero earning targets, managers who have the mandate to meet or beat the earning benchmark will increase labour cost to a smaller extent when activity increases and decrease labour cost to a larger extent when activity decreases. Firms who present a small profit fire employees whereas firms with a larger profit limit the number of dismissals by changing the number of hours worked by employee as presented by (Dierynck, Landsman, and Renders 2012). As studied by Sharfman, Wolf, Chase and Tansik (1988) the downsizing argument is more applicable to mature, stable firms than to young, growth firms because mature firms tend to have more slack resources channelled into Selling, General and Administrative expenses (SG&A)

Kama and Weiss (2013), believe that the incentive to achieve predetermined targets make managers motivated to cut the costs even if it is not in line with value creation for the company

in long run. In another study, Angeloba, Giebe and Stenzel (2018), state that higher incentives lead to higher effort but not necessarily higher performance. Therefore, it is important for owners, shareholders and stakeholders to check out whether the decisions of managers burden costs on the organization and is value destroying or not.

The agency theory predicts the imbalance of interest between shareholders and managers lead to agency problems because managers engage in activities for their own benefits instead of that of the shareholders (Jensen and Meckling, 1976). One form of this agency problem is empire building which explains managers' tendencies to grow the organisation beyond the optimal level mainly for their own interest such as being in the spotlight, power and compensation amongst others. Chen, Lu and Sougiannis (2012) identified a positive relationship between agency problems and the degree of cost asymmetry of Selling, General and Administrative expenses (SGA) by basing their results on firm-specific cost behaviour on the organizational level as well as on the individual level. They further analysed that empire building managers are likely to increase SG&A costs too when sales decrease. They document that cost stickiness is more pronounced when corporate governance is low which entices managers to engage in empire building activities for their own benefits therefore good corporate governance mitigates this asymmetric relationship. This has been further explained where Calleja et al (2006) find that operating costs of French and German companies are stickier than operating costs of UK and US companies due to differences in corporate governance and managerial oversight to cause variations in cost stickiness between countries. Further studies show that real earnings management incentives also moderate the extent of cost stickiness (Dierynck, Landsman, and Renders 2012; Kama and Weiss 2013).

Swedish corporations have begun to adopt US-style CEO incentive compensation (bonuses, stock options, etc.), although on a smaller scale. There is much more concern in Sweden with the relationship between the pay scales of top management and of other employees (Lubatkin et al, 2005). Interestingly, CEO compensation in the highly open Scandinavian countries is smaller as compared to the pay checks of executives in the United States. These differences could lead to variations between the two countries in cost behaviour arising from managerial operating decisions.

Kitching, Mashruwala and Pevzner (2016) investigated the effect of culture on sticky costs. They used Hofstede's cultural dimensions which are individualism, power distance, femininity/masculinity, uncertainty avoidance and long-term orientation and SG&A costs as their main variables. Based on their research on 39 countries, higher uncertainty avoidance, masculinity and long-term orientation lead to less cost stickiness because when managers avoid future uncertainty, they prefer not to structure bonus and compensation based on each individual performance, so it would decrease the empire building and consequently cost stickiness. Also, long-term oriented managers tend to be thrifty; therefore, their thriftiness motivates them not to keep unutilized resources. In addition, it was expected that masculinity increases the sticky costs because men have the tendency to build empires, however according to their paper, to reduce earning decreases, men's reaction to firing employees is more pronounced than that of women thereby decreasing cost stickiness. Individualism and power distance are not significant and do not affect cost stickiness.

Roychowdhury (2006) believes that managers start to do real earning management to pretend earning target is met in usual situation, while the fact is they have cut costs more aggressively than normal situation. He states that most of managers decrease R&D expenditures but some of them report higher profit by selling assets. Such decisions affect company negatively in long run and that is why sophisticated investors choose companies with lower real earning management. Therefore, it is important to detect opportunistic behaviours of managers like: overproduction, sale manipulation and cost reduction. He also states that in the presence of debt, growth opportunities, receivables and stock of inventories are associated with real earning management positively.

Burgstahler & Dichev (1997) use two theories based on stakeholder use of information processing heuristics and prospect theory to conclude that managers manipulate real activities to avoid losses or earning decreases. They manipulate cash flow from operations and changes in working capital to increase earnings. The incentive to meet forecast might also push them towards earning management. James Chen (2019) explains heuristics in Investopedia as a flexible technique for quick decisions, particularly when working with complex data and further explains that decisions made using this heuristic approach may not necessarily be optimal. The prospect theory is also explained by James Chen (2018) on Investopedia as an assumption that

losses and gains have different definitions values and meanings for people, thus each person makes his own decision considering perceived earnings, instead of losses. Based on previous research, when there are increases in earnings in successive periods, the incentive of managers to prevent decrease in earnings becomes stronger. When managers are hopeful about sale increase in future, they tend to keep resources which increase the cost stickiness. Based on a paper about Iranian stock exchange companies, Iranian managers are concentrated on marketing and they are optimistic about future sale, thus they tend to keep available resources due to hope to seize future earnings. These companies show signs of increases in financial reports' quality when cost stickiness intensified and vice versa (Salehi, Ziba & Daemi, 2018)

3. Methodology

This chapter explores the methodology of the work. We begin by describing the sampling techniques employed in the study. We further explain the motivation behind the time frame chosen and the component of the variables used in this study. We explore the reliability and validity of this study. The method used in the study is described and finally, we show some limitations we encountered during the study.

3.1 Sample selection

This study examined Swedish companies listed on NASDAQ OMX, Stockholm stock exchange market, from 2014 to 2018. There are 378 listed companies but we excluded financial firms due to their particular accounting and finance structure, and also those companies which were not listed before 2013 due to unavailability of data for our model. Finally, 192 out of 378 firms are used for our analysis.

3.2 Time frame

The time frame for this study spans from 2014 to 2018. Our model needs data of previous fiscal year so the start point is December 2013. Even though Stockholm stock exchange was founded from 1863, a large amount of old data was missing in Lund University's database, Bloomberg, thus the availability of data was the most important factor for selecting the duration of study.

3.3 Model

Kama and Weiss (2013) used ABJ's framework to evaluate the cost stickiness of US companies with valid data in Compustat from 1979 to 2006 based on the model below:

$$\Delta \ln OC_{it} = \beta_0 + \beta_1 \Delta \ln REV_{it} + \beta_2 REVDEC_{it} * \Delta \ln REV_{it} + \varepsilon_{it}$$

“In the ABJ framework, the coefficient β_1 measures the percentage change in costs for a 1% increase in sales, indicating the variation of operating costs with sales revenue. Similarly, $\beta_1 + \beta_2$ measure the percentage change in operating costs resulting from a 1% decrease in sales. ABJ and a series of subsequent studies report a significantly positive coefficient β_1 , and a significantly negative coefficient β_2 using various samples and contexts. ABJ claim that a significantly negative coefficient β_2 conditional on a positive coefficient β_1 indicates sticky costs” (Kama & Weiss, 2013, 206). Considering research questions and using aforementioned model, research hypotheses are:

H1: Resource adjustments made intentionally to meet earnings targets diminish cost stickiness.

H2: For a given decrease in sales, managers cut costs more aggressively in the presence of incentives to meet earnings targets than in the absence of these incentives.

Table 1: Variable Definitions

VARIABLE	DEFINITION
$\Delta \ln OC_{it}$	Natural logarithm of operating cost in year t minus natural logarithm of operating cost in year t-1
$\Delta \ln REV_{it}$	Natural logarithm of revenue in year t minus natural logarithm of revenue in year t-1
$REVDEC_{it}$	Dummy variable which takes 1 if the revenue of current year is lower than previous year and 0 if otherwise

To add the impact of incentives to our model, we followed Burgstahler and Dichev (1997), Roychowdhury (2006), and Cohen, Dey, and Lys (2008). Based on their articles, there are two formulas to measure the incentives to meet earning targets. Meeting earning targets can be split into having incentives to avoid earning decreases and having incentives to avoid losses.

Examining whether managers are motivated to avoid earning decreases or not, previous studies suggest the following formula:

If: $0 < \text{Net Income} / \text{Market Capitalization} < 0.01$

then there is an incentive to meet earning targets, If not, then managers do not have an incentive to adjust resources.

In addition, below is an alternate calculation to discover incentives to avoid losses:

If: $0 < \text{Changes in Net Income} / \text{Market Capitalization} < 0.01$

Managers are motivated to avoid losses. If not, then managers do not have the incentive to avoid losses.

According to the aforementioned explanation, we need to divide the sample into two groups. Firstly, a group consisting of companies with and without incentives to avoid earning decrease. The next group includes those companies that have or do not have incentives to avoid losses during a fiscal period.

We then estimate the model for them. The result of coefficients β_2 supports the first hypothesis if β_2 is significant and higher for those companies that have incentives to avoid earning decreases in comparison with companies without incentives.

“The estimated coefficients β_1 and β_2 support the second hypothesis if the slope for sales decreases, $\beta_1 + \beta_2$, is significantly higher in the presence of incentives to meet earnings targets than the slope absent these incentives.” (Kama & Weiss, 2013, 207)

The same process is repeated for the second group.

Table2: Expected Relationships

	Expected Sign/ Relationship
β_1	+
β_2	-
Hypo 1	$\beta_2 \text{ Incentive} > \beta_2 \text{ No Incentive}$
Hypo 2	$\beta_1 + \beta_2 \text{ (Incentive)} > \beta_1 + \beta_2 \text{ (No Incentive)}$

According to Kama and Weiss (2013), in facing incentives to meet earnings targets, self-interested managers are likely to accelerate cuts of slack resources in response to a sales drop even if the drop is expected to be temporary. These accelerated cuts of slack resources result in greater cost decreases in the presence of incentives to meet earnings targets than in the absence of such incentives. As shown in table 2, Based on Kama and Weiss (2013) hypothesis, we expect $\beta_2 \text{ Incentive} > \beta_2 \text{ No Incentive}$ and $\beta_1 + \beta_2 \text{ (Incentive)} > \beta_1 + \beta_2 \text{ (No Incentive)}$.

3.3.1 Reliability and validity

The ability for results in a research work to be replicated, given the same data, signifies the validity of the research work (Bryman, Bell & Nilsson 2005). The issue of reliability is therefore important in research. The use of secondary data raises an issue of a reliability problem. Hence, we see the problem of reliability modest with our thesis since data were all gathered from Bloomberg which is considered trustworthy.

Validity on the other hand is much relevance in research. According to Bryman, Bell and Nilsson (2005) the adequacy and legitimacy of variables used in the study to measure the intended purpose signifies the validity of the variables. Our research work is based on previous research which justifies the validity of our thesis.

3.4 Method Description

We used ordinary least square technique to estimate unstructured data and followed up with a white test on all regressions. If the results of white test showed heteroscedastic variance error, then a white mode was used. A Durbin Watson test was also done to check for auto correlation of data, the results of this lies between zero to four. A result leaning near two shows no auto correlation. Also, we used a spearman correlation to check the correlation of the data. The results of white test and correlation are shown in appendices.

Another concern is the use of cross-sectional dataset due to the lack of uniformity in accounting choices across the industries. This further complicates comparison of findings and can mislead conclusions. To address this issue, industry and year control are included in the empirical models.

3.5 Limitations

This study was supposed to cover duration from 2006 to 2018 because adoption of IFRS became mandatory among European countries since 2005. It is believed that through the application of accounting techniques and approaches we are able to address and fix issues (Potter,2005), thus after 2005 it was expected to have less earning management but the result was not in line with expectations and many studies reported intensified earning management after the adoption (Callao & Jarne, 2010; Enomoto & Kimura & Yamaguchi, 2015). We therefore decided to base our research on European companies which work on the more compatible regulations to decrease the effect of other factors which might have influence earning management but unfortunately because of time limitation and incomplete data in Bloomberg, we decided to work on Swedish public companies from 2014 to 2018.

Also, we do not have enough control variables as we can only control 16% of variables chosen. The data was not normal and the results of white test showed heteroscedastic variance error.

4. Results

We present the results of the regression models in this chapter. The chapter begins with descriptive statistics which is preceded by the regression models.

4.1 Sample Selection and Descriptive statistics

Data from Bloomberg was used for the following analysis. The data includes 192 Swedish companies from the year 2014 -2018. As stated earlier, cases from 2006 and 2012 were excluded from the study because large amounts of data were missing from the database, Bloomberg. The dataset therefore includes annual figures of non-financial industries. The total number of observations is 960 with an average of 5 observations per firm.

Table 3 shows the descriptive statistics of the data used in our analysis. The mean for changes in natural log of operating costs and revenue over the years are 0.085 and 0.0849 respectively. This show that costs and income are gradually rising in Swedish companies probably due to developing industries and the buoyant economic situation. The delta operating cost is positively skewed because the value is higher than the sample mean. The result of this positive skewness explains why the mean is slightly greater than the median. However, the delta of revenue is negatively skewed due to a lower value of the sample mean. It is interesting to note that the standard deviation for both delta operating cost and delta revenue are 0.336782 and 0.36094 respectively indicating a high disperse from the mean.

Industrial and telecommunication accounted for a mean of 0.328125 and 0.026042 and a standard deviation of 0.469775 and 0.159342 respectively. In all, there are seven (7) industries made up of consumer goods, consumer services, health care, industrials, technology, telecommunication and basic materials. On average, Swedish industry is dominated by industrials with the highest mean of 0.328125 with telecommunication with the lowest at 0.026042.

Table 3: Descriptive Statistics

	DELTAOP	DELTAREV	DECREV	DEC14	DEC15	DEC16	DEC17	GOODS	SERVICES	HEALTH	INDUSTRIAL	TECHNOL...	TELECOM...	BASIC MA...
Mean	0.085062	0.084958	-0.054293	0.200000	0.200000	0.200000	0.200000	0.109375	0.125000	0.161458	0.328125	0.140625	0.026042	0.083333
Median	0.073246	0.081363	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Maximum	3.567550	2.519028	0.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
Minimum	-2.378049	-5.185788	-5.185788	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Std. Dev.	0.336782	0.360943	0.253246	0.400208	0.400208	0.400208	0.400208	0.312272	0.330891	0.368145	0.469775	0.347816	0.159342	0.276529
Skewness	1.492849	-3.350837	-11.65790	1.500000	1.500000	1.500000	1.500000	2.503131	2.267787	1.840134	0.732114	2.067546	5.952036	3.015113
Kurtosis	34.56406	60.00452	196.4475	3.250000	3.250000	3.250000	3.250000	7.265664	6.142857	4.386095	1.535991	5.274747	36.42674	10.09091
Jarque-Bera	40208.17	131777.1	1518622.	362.5000	362.5000	362.5000	362.5000	1730.342	1217.959	618.6256	171.4915	890.9386	50362.15	3465.785
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	81.65967	81.56006	-52.12106	192.0000	192.0000	192.0000	192.0000	105.0000	120.0000	155.0000	315.0000	135.0000	25.00000	80.00000
Sum Sq. Dev.	108.7716	124.9386	61.50388	153.6000	153.6000	153.6000	153.6000	93.51563	105.0000	129.9740	211.6406	116.0156	24.34896	73.33333
Observations	960	960	960	960	960	960	960	960	960	960	960	960	960	960

4.2 Regression result

According to ABJ(2003) and Kama and Weiss (2013), in this model, the coefficient β_1 indicates the changes in operating costs when there is 1 % increase in sales. In addition, $\beta_1 + \beta_2$ measures changes in operating costs in presence of 1 % decrease in sales. By examining various samples, context and dates, researchers believe that having a significant but negative β_2 conditional on a positive significant β_1 indicates cost stickiness in a company.

To test the first hypothesis, we must have significant and negative β_2 when managers do not have incentives to meet earning targets (i.e. having incentive to avoid either losses or earning decrease during the current period) while there is significant and higher (i.e. less negative or positive) β_2 in the presence of incentives. Also, to check the second hypothesis, $\beta_1 + \beta_2$ for managers who have incentive should be higher than $\beta_1 + \beta_2$ of managers without incentives.

Table 4: Regression Results

	Avoid Losses		Avoid earning Decreases	
	Incentive	No incentive	Incentive	No Incentive
β_1	1.159127	0.534644	1.169562	0.536699
Prob	0.0000	0.0000	0.0000	0.0000
β_2	-0.456601	-0.446983	-1.636687	-0.435747
Prob	0.1588	0.0012	0.0000	0.0032
Prob	0.000000	0.000001	0.000000	0.000006
R-Squared	0.470188	0.153408	0.242388	0.166425
Durbin-Watson	2.733658	2.147603	1.910565	2.203722

According to table 4, the first hypothesis for avoiding losses is rejected because β_2 for companies with incentives is not significant. Therefore, these results cannot be compared to β_2 of companies without incentives.

To test the first hypothesis for avoiding earning decreases, it can be noted that β_2 of companies with incentives is less than β_2 of companies without incentives ($-1.636687 < -0.435747$). This is not consistent with our expectations based on Kama and Weiss (2013) which posits that β_2 of companies with incentives should be higher to prove that resource adjustments made intentionally diminishes cost stickiness. The ending result of the first hypothesis in our study was rejected based on this.

The second hypothesis for avoiding losses is rejected because β_2 is not significant.

The second hypothesis for avoiding earning decreases, $\beta_1 + \beta_2$ for companies that have incentives should be higher than $\beta_1 + \beta_2$ for companies without incentives. This leads to an acceptance of the hypothesis however, in table 4, $1.169562+(-1.636687)$ is less than $0.53669+(-0.435747)$

5. Discussion of major findings

Table 5: Expected and Observed Relationships

	Expected Sign/ Relationship	Observed Signs/ Relationship
β_1	+	+
β_2	-	-
Hypo 1	$\beta_2 \text{ Incentive} > \beta_2 \text{ No Incentive}$	$\beta_2 \text{ Incentive} < \beta_2 \text{ No Incentive}$
Hypo 2	$\beta_1 + \beta_2 \text{ (Incentive)} > \beta_1 + \beta_2 \text{ (No Incentive)}$	$\beta_1 + \beta_2 \text{ (Incentive)} < \beta_1 + \beta_2 \text{ (No Incentive)}$

It can be noted from table 5 that there is cost stickiness in Swedish Listed Firms because β_2 is negative conditional on positive β_1 . The results of the study are consistent with expectations however, as mentioned in Chapter 4, the first and second hypothesis were rejected.

These results are similar to results of Banker, Byzalov and Plehn-Dujowich (2011) study (UK, Brazil, Sweden, and South Africa) and prove empirically that there are no significant results in β_2 for the first hypothesis for companies which have incentives to avoid losses.

These results are not consistent with Kama and Weiss (2013) because US companies were used for Kama and Weiss (2013) study. Listed companies in USA are significantly different from Swedish Listed companies based on the following reasons;

5.1 Ownership Structure and Corporate Governance

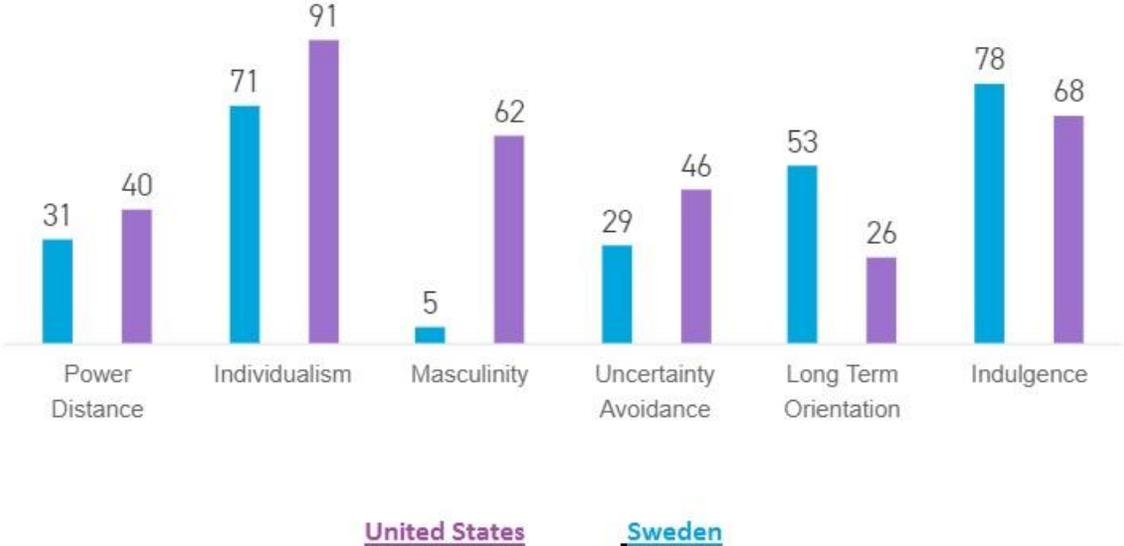
The concentrated ownership structures of Swedish firms are more concentrated than the US because a large fraction of the Swedish listed firms are family controlled (Angblad et al, 2001). Due to this, there is no pressure to report performance to shareholders hence the degree of cost stickiness. With regards to the corporate governance environment, managers in Sweden are focused on long term objectives. Even though it has been proven that managers in Sweden tend to build empires for control purposes (Bebchuk, Kraakman & Triantis 1999), Kitching et al (2016) argues that thriftiness on the part of managers overpowers empire building motives to

retain the long term objectives of companies. The thriftiness of the Swedish managers motivates them to not keep unutilized resources. This can be therefore explained as the reason why incentives such as empire building cannot be associated with cost stickiness in Sweden.

5.2 Cultural Dimensions

Based on a study done by Kitching et al (2016), three dimensions out of five cultural dimensions have descending effect on cost stickiness. As is shown in figure 1, Sweden is highly different with U.S.A in their Masculinity. Sweden is counted as a feminine country with the rate of 5, while U.S.A has 62 in this dimension. Therefore, managers in these countries have different motivations and attitude toward hiring and firing employees. Also, Sweden is about two times more long term oriented than U.S. which shows managers behave thriftier in Sweden which leads to less cost stickiness. On the other hand, U.S has higher rate of uncertainty avoidance rather than Sweden. It means, manager in U.S feel more pressure to avoid loss rather than increase earnings in future. So considering future demand, they focus on minimum amount instead of maximum. Subsequently, they estimate less resource to meet future demands.

Figure 1: Cultural Dimensions of Sweden vs. U.S.A (Hofstede,2019)



5.3 Compensation

Although Swedish corporations have begun to adopt US-style CEO incentive compensation (bonuses, stock options, etc.), CEO compensation in the highly open Scandinavian countries is smaller as compared to the pay checks of executives in the United States. Randøy et al (2002) found out that the social democratic culture of Sweden contributes to a disconnect between company performance and CEO compensation where performance does not come in as part of arguments for CEO compensation. In Swedish listed firms, if compensation in the form of pay, bonuses, and other options cannot be linked to the achievement of particular goals such as earning targets, then other contributing factors could explain for the cost stickiness in these firms.

6. Conclusion

This study presents empirical analysis on whether Swedish listed companies demonstrate a decrease in cost stickiness when resources are adjusted to meet targets. Also, the study examines the effect of incentives on managers to cut expenses more aggressively. This study contributes to the literature on cost stickiness by providing evidence from the Swedish market where a lot of study has not been made on cost stickiness. This study finds sticky cost behaviour for Operating cost and Revenue.

While Swedish companies show signs of cost stickiness, the results of this paper are not consistent with previous research of Kama and Weiss (2013) where in the presence of incentives there is greater cutting of cost which presents a less degree of cost stickiness. The reason might be that previous studies focused on U.S companies which are short-termism but Sweden is a long term oriented country and short term objectives do not affect managers as much as U.S.

Applying the model used in Kama and Weiss (2013), we can conclude that listed firms in Sweden exhibit cost stickiness however; incentives as a motivation does not induce this cost stickiness.

This study is subject to some limitations. First, the study applied seven (7) industries; it is difficult to generalize the results to others because of their different cost structure and business approach. Second, the five years study data is related to data that was readily available on Bloomberg; the cost behaviour could be different in other periods. Third, the study only examined a limited number of variables that is operating cost and revenue, it is unclear how other explanatory variables might influence cost asymmetry.

6.1 Future research

It has been empirically proven by Kama and Weiss (2013) that in the presence of incentives, there is greater cutting of cost than if there are no incentives. This therefore reduces the degree of cost stickiness. Our results however showed that there is cost stickiness in the Swedish listed Companies even without incentives.

Future research could investigate the influence of other incentives such as management compensation and their risk appetite on cost asymmetry. This future study could employ different methodologies such as interviews to investigate managers' motivation that affect asymmetrical cost behaviour. Also since there is no relationship between motivation and cost stickiness in Swedish listed companies, there will be a need to consider other explanatory variables such as cultural dimension on cost stickiness.

Again, the Swedish governance setting is characterized by families who own large control in their firms. This makes the market more concentrated in terms of ownership as compared to the US. Bebchuk et al. (1999) find that disproportionate ownership structures with a controlling owner can create very large agency costs and these controlling owners are more inclined to engage in empire building. It is however interesting to note that despite this, incentives such as empire building is not a cause for cost stickiness in Swedish listed firms. It will be therefore interesting to investigate the interest of these concentrated firms on cost stickiness.

Finally, because larger samples can give a more generalized result, an in-depth study on the European market should be done to give a better insight on earning management and cost stickiness post IFRS adoption.

References

1. Anderson, M.C. & Banker, R.D. & Janakiraman, S. 2003. “Are Selling, General, and Administrative Costs “Sticky”?” *Journal of Accounting Research* 41 (1) 47-63.
2. Angelova, V. & Giebe, T. & Ivanova-Stenzel, R. 2018. “Does a short-term increase in incentive boost performance?” *Economics Letters* 166 31–34.
3. Angblad, J., Berglöf, E., Högfeldt, P., and Svancar, H. (2001) “Ownership and Control in Sweden - Strong Owners, Weak Minorities, and Social Control” *The Control of Corporate Europe: 228-258*.
4. Banker, R.D. and Chen, L. 2006, “Labor Market Characteristics and Cross-country Differences in Cost Stickiness”, Working Paper, Georgia State University, <https://doi.org/10.2139/ssrn.921419>.
5. Banker, R., Byzalov, D., & Plehn-Dujowich, J. M. (2011). “Sticky cost behaviour: Theory and evidence.” Working paper, Temple University. <http://dx.doi.org/10.2139/ssrn.1659493>
6. Banker, R.D., Byzalov, D. and Chen, L. 2013, “Employment Protection Legislation, Adjustment Costs and Cross-country Differences in Cost Behaviour” *Journal of Accounting and Economics*, 55 (1): 111–27.
7. Bebchuk, Lucian A., Reiner Kraakman, & Triantis, G. 1999. “Stock pyramids, cross-ownership, and dual class equity: The creation and agency costs of separating control from cash flow rights” NBER Working paper #6951.
8. Brasch, H. (1927). Zur Praxis der Unkostenschwankungen und ihrer Erfassung (II) (The practice of cost fluctuation and their measurement). *Betriebswirtschaftliche Rundschau*, 1927(4), 65–73.

9. Bromwich, M. 2007. Economics in Management Accounting. *In Handbooks of Management Accounting Research* 137-162.
10. Bryman, A., Bell, E. & Nilsson, B. (2005). Företagsekonomiska forskningsmetoder. Liber ekonomi.
11. Bugeja, M., Lu, M. and Shan, Y. 2015, "Cost Stickiness in Australia: Characteristics and Determinants" *Australian Accounting Review*, 25 (3): 248–61.
12. Burgstahler, D. & Dichev, I. 1997, "Earning Management to Avoid Earning Decreases and Losses" *Journal of accounting and Economics* 24, 99-126.
13. Callao, S., Jarne, J. I., 2010. "Have IFRS Affected Earnings Management in the European Union?" *Journal of Accounting in Europe* 7, 159-189.
14. Calleja, K., M. Steliaros, and D. Thomas. 2006. "A Note on Cost Stickiness: Some International Comparisons" *Management Accounting Research* 17 (2): 127-140.
15. Chen, C. X., H. Lu, and T. Sougiannis. 2012. "The Agency Problem, Corporate Governance, and the Asymmetrical Behaviour of Selling, General, and Administrative Costs." *Contemporary Accounting Research* 29 (1): 252–282.
16. Cohen, D.A. & Dey, A. & Lys, T. Z. (2008). "Real and Accrual-Based Earning Management in the Pre- and Post- Sarbanes- Oxley Periods" *The Accounting Overview* 83 (3) 757-787.
17. Cooper, R., and R. Kaplan. 1992. "Activity Based Cost Systems: Measuring the Cost of Resources Usage." *Accounting Horizons* 6 (3): 1–13.

18. Czarniawska-Joerges, Barbara 1993 “Swedish management” *International Studies of Management and Organization* 23/1: 13–27.
19. Dalla Via, N., & Perego, P. (2014). “Sticky cost behaviour: Evidence from small and medium sized companies.” *Accounting & Finance*, 54(3), 753-778. <https://doi.org/10.1111/acfi.12020> .
20. Dierynck, B., W. Landsman, and A. Renders. 2012. “Do Managerial Incentives Drive Cost Behaviour? Evidence About the Role of the Zero Earnings Benchmark for Labor Cost Behaviour in Private Belgian Firms.” *The Accounting Review* 87 (4): 1219-1246.
21. Esbjorn Segelod, 2000. “A comparison of managers perceptions of short-termism in Sweden and the U.S” *International Journal of Production Economics*, vol. 63(3), pages 243-254, January. <<https://ideas.repec.org/a/eee/proeco/v63y2000i3p243-254.html>>
22. Enomoto, M. & Kimura, F. & Yamaguchi, T. 2015. “Accrual-based and real earnings management: An international comparison for investor protection.” *Journal of contemporary Accounting and Economics*. 11 183-198.
23. Guenther, T.W., Riehl, A. & Rößler, R. *J Manag Control* (2014) 24: 301. <https://doi.org/10.1007/s00187-013-0176-0> [Accessed on 22nd April, 2019].
24. Hoffmann, K. (2017). *Cost Behaviour: “An Empirical Analysis of Determinants and Consequences of Asymmetries.”* Frederiksberg: Copenhagen Business School [Phd]. PhD Series, No. 06.2017.
25. Hofstede, Available online: <https://www.hofstede-insights.com/country-comparison/sweden,the-usa/> [Accessed, 25 May 2019].
26. Institute of Medicine (US) Committee on Implications of For-Profit Enterprise in Health Care; Gray BH, editor. *For-Profit Enterprise in Health Care*. Washington (DC): National

Academies Press (US); 1986. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK217906/> doi: 10.17226/653 Accessed on 22nd April, 2019.

27. Investopedia prospect theory (2018), Available online: <https://www.investopedia.com/terms/p/prospecttheory.asp> [Accessed 24 May 2019].
28. Investopedia Heuristic theory (2019), Available online: <https://www.investopedia.com/terms/h/heuristics.asp> [Accessed 24 May 2019].
29. Jankensgard, H. 2018. Lecture 8: Managing for value, powerpoint presentation, LUSEM Lund, 4 October 2018.
30. Jensen, M. C., and W. Meckling. 1976. "Theory of the firm: Managerial behaviour, agency costs, and capital structure." *Journal of Financial Economics* 3 (4): 305–60.
31. Kama, I. & Weiss, D. 2013. "Do Earnings Targets and Managerial Incentives Affect Sticky Costs?" *Journal of Accounting Research*, 51 (1), 201-224.
32. Kitching , K ., Mashruwala , R, . Pevzner , M, .(2016). "Culture and cost stickiness :A cross-country study." *The international journal of accounting*, 51, 402–417.
33. Lepădatu, Gheorghe. (2012). "The importance of the cost information in making decisions." *Romanian Economic Business Review*. 6. 52-66.
34. Li, Y.H. (2018) "Earnings Management Motivation and Cost Stickiness—Research Based on Private Equity Placement." *American Journal of Industrial and Business Management* , 8, 597-606. <https://doi.org/10.4236/ajibm.2018.83039> .
35. Lubatkin, M. H., Lane, P. J., Collin, S.-O., & Very, P. (2005). "Origins of Corporate Governance in the USA, Sweden and France." *Organization Studies*, 26(6), 867–888

36. Mantel, S.P. & Tatikonda, M.V. & Liao, Y. 2006. "A behavioural study of supply manager decision-making: Factors influencing make versus buy evaluation." *Journal of Operations Management* 24 822–838.
37. Mensah, Y., R. Hwang, and D. Wu. 2004. "Does Managerial Accounting Research Contribute to Related Disciplines? An Examination Using Citation Analysis." *Journal of Management Accounting Research* 16: 163-181.
38. Noreen, E., and N. S. Soderstrom. 1997. "The Accuracy of Proportional Cost Models: Evidence from Hospital Service Departments." *Review of Accounting Studies* 2 (1): 89–114.
39. Pampolna, E. & Fiirst, C. & Silva, T.B.J. & Zonatto, V.C.S. 2016. "Sticky costs in cost behaviour of the largest companies in Brazil, Chile and Mexico." *Contaduría y Administración* 61, 682–704.
40. Potter, B. N., 2005. "Accounting as a Social and Institutional Practice: Perspectives to Enrich our Understanding of Accounting Change." *Abacus* 41, 265-289.
41. Randøy, T. & Nielsen, J. 2002. "Company Performance, Corporate Governance, and CEO Compensation in Norway and Sweden", *Journal of Management and Governance*, 6 (1) 57-81. <https://doi.org/10.1023/A:1015511912289>
42. Roychowdhury, S. 2006. "Earnings management through real activities manipulation." *Journal of Accounting and Economics* 42, 335–370.
43. Salehi, M. & Ziba, N. & Daemi Gah, A. 2018. "The relationship between cost stickiness and financial reporting quality in Tehran Stock Exchange" *International Journal of Productivity and Performance Management*, Vol. 67 (9): 1550-1565

44. Sharfman, M. P., G. Wolf, R. B. Chase, and D. A. Tansik. 1988. "Antecedents of organizational slack." *Academy of Management Review* 13 (4): 601–14.
45. Silva, A. da, Zonatto, V. C. da S., Magro, C. B. D. & Klann, R. (2019). "Sticky Costs Behaviour and Earnings Management." *Brazilian Business Review*, 16(2), 191-206
<https://doi.org/10.15728/bbr.2019.16.2.6>.
46. Subramaniam, C. and Weidenmier, M.L. 2003, "Additional Evidence on the Sticky Behaviour of Costs" Working Paper, Texas Christian University,
<https://doi.org/10.2139/ssrn.369941>.
47. Smith, M. 2015. *Research Methods in Accounting*. London: SAGE Available at Google Books: bookgoogle.com [Accessed 26 May 2019].
48. Your article library. Available online:
<http://www.yourarticlelibrary.com/management/manager/role-of-manager-in-an-organization/53144> [Accessed 15 April 2019].
49. Zanjirdar, M. & Ashtiyani, P.Gh. & Madahi, Z. 2014. "Analyzing Effective Factors on Cost Behaviour." *Faslname Elmi Pajuheshi Hesabdari Modiriyat*, 20, 79-91.
50. Zonatto, V.C.S. & Margo, C.B.D & Santa'ana, C.F & Padilha, D.F 2018. "Effects of economic growth in the behaviour of sticky costs of companies belonging to BRICS countries." *Contaduría y Administración* 63 (4), 1-25.

Appendices

Appendix 1

To Avoid Losses

Companies with Incentives

Dependent Variable: DELTAOP
 Method: Least Squares
 Date: 05/23/19 Time: 15:43
 Sample: 1 83
 Included observations: 83
 White heteroskedasticity-consistent standard errors & covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DELTAREV	1.159127	0.171253	6.768506	0.0000
DECREV	-0.456601	0.320565	-1.424362	0.1588
DEC14	0.019720	0.095001	0.207576	0.8362
DEC15	0.021429	0.077275	0.277315	0.7824
DEC16	0.109117	0.101070	1.079618	0.2841
DEC17	0.067211	0.097600	0.688633	0.4934
GOODS	-0.118006	0.461803	-0.255532	0.7991
SERVICES	-0.089948	0.471240	-0.190876	0.8492
HEALTH	-0.075390	0.457178	-0.164902	0.8695
INDUSTRIAL	-0.068105	0.441195	-0.154366	0.8778
TECHNOLOGY	-0.029542	0.450098	-0.065634	0.9479
TELECOMMUNICATI...	-0.138407	0.455619	-0.303779	0.7622
BASIC_MATERIALS	-0.037800	0.450091	-0.083982	0.9333
C	0.008029	0.487437	0.016471	0.9869
R-squared	0.470188	Mean dependent var		0.066936
Adjusted R-squared	0.370369	S.D. dependent var		0.311220
S.E. of regression	0.246951	Akaike info criterion		0.193361
Sum squared resid	4.207949	Schwarz criterion		0.601358
Log likelihood	5.975512	Hannan-Quinn criter.		0.357272
F-statistic	4.710382	Durbin-Watson stat		2.733658
Prob(F-statistic)	0.000009	Wald F-statistic		8.339967
Prob(Wald F-statistic)	0.000000			

Heteroskedasticity Test: White

F-statistic	4.742630	Prob. F(13,69)	0.0000
Obs*R-squared	39.16673	Prob. Chi-Square(13)	0.0002
Scaled explained SS	107.4464	Prob. Chi-Square(13)	0.0000

Test Equation:

Dependent Variable: RESID^2
 Method: Least Squares
 Date: 05/23/19 Time: 21:28
 Sample: 1 83
 Included observations: 83
 White heteroskedasticity-consistent standard errors & covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.528743	0.236976	2.231208	0.0289
DELTAREV^2	0.051365	0.167727	0.306241	0.7603
DECREV^2	-0.280590	0.385601	-0.727292	0.4695
DEC14^2	0.017266	0.040025	0.431386	0.6675
DEC15^2	-0.011422	0.031709	-0.360195	0.7198
DEC16^2	-0.034472	0.054202	-0.635985	0.5269
DEC17^2	-0.005647	0.043082	-0.131063	0.8961
GOODS^2	-0.422652	0.233469	-1.810310	0.0746
SERVICES^2	-0.493489	0.227870	-2.165664	0.0338
HEALTH^2	-0.498558	0.226012	-2.205893	0.0307
INDUSTRIAL^2	-0.512282	0.233510	-2.193833	0.0316
TECHNOLOGY^2	-0.514339	0.230801	-2.228494	0.0291
TELECOMMUNICATION^2	-0.510464	0.228405	-2.234904	0.0287
BASIC_MATERIALS^2	-0.501930	0.227486	-2.206427	0.0307
R-squared	0.471888	Mean dependent var		0.050698
Adjusted R-squared	0.372389	S.D. dependent var		0.143716
S.E. of regression	0.113855	Akaike info criterion		-1.355172
Sum squared resid	0.894440	Schwarz criterion		-0.947174
Log likelihood	70.23963	Hannan-Quinn criter.		-1.191261
F-statistic	4.742630	Durbin-Watson stat		1.789231
Prob(F-statistic)	0.000009			

Companies with no Incentives

Dependent Variable: DELTAOP
 Method: Least Squares
 Date: 05/23/19 Time: 20:53
 Sample: 1 877
 Included observations: 877
 White heteroskedasticity-consistent standard errors & covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DELTAREV	0.534644	0.093111	5.741990	0.0000
DECREV	-0.446983	0.137854	-3.242441	0.0012
DEC14	-0.016121	0.034324	-0.469679	0.6387
DEC15	0.019521	0.021124	0.924114	0.3557
DEC16	-0.000887	0.033700	-0.026306	0.9790
DEC17	-0.004362	0.026044	-0.167500	0.8670
GOODS	0.168217	0.260649	0.645378	0.5189
SERVICES	0.187709	0.259834	0.722419	0.4702
HEALTH	0.157692	0.257625	0.612098	0.5406
INDUSTRIAL	0.190722	0.259300	0.735525	0.4622
TELECOMMUNICATI...	0.147292	0.268492	0.548590	0.5834
TECHNOLOGY	0.194383	0.259269	0.749734	0.4536
BASIC_MATERIALS	0.152649	0.259276	0.588750	0.5562
C	-0.159122	0.255955	-0.621678	0.5343
R-squared	0.153408	Mean dependent var	0.086778	
Adjusted R-squared	0.140656	S.D. dependent var	0.339216	
S.E. of regression	0.314456	Akaike info criterion	0.539893	
Sum squared resid	85.33592	Schwarz criterion	0.616142	
Log likelihood	-222.7429	Hannan-Quinn criter.	0.569057	
F-statistic	12.02936	Durbin-Watson stat	2.147603	
Prob(F-statistic)	0.000000	Wald F-statistic	4.273398	
Prob(Wald F-statistic)	0.000001			

Heteroskedasticity Test: White

F-statistic	8.675841	Prob. F(13,863)	0.0000
Obs*R-squared	101.3678	Prob. Chi-Square(13)	0.0000
Scaled explained SS	2267.179	Prob. Chi-Square(13)	0.0000

Test Equation:

Dependent Variable: RESID^2
 Method: Least Squares
 Date: 05/23/19 Time: 20:55
 Sample: 1 877
 Included observations: 877
 White heteroskedasticity-consistent standard errors & covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.349175	0.555384	2.429266	0.0153
DELTAREV^2	0.110275	0.026796	4.115406	0.0000
DECREV^2	-0.096422	0.026226	-3.676584	0.0003
DEC14^2	0.118295	0.067500	1.752520	0.0800
DEC15^2	-0.009357	0.024247	-0.385903	0.6997
DEC16^2	0.117804	0.074520	1.580840	0.1143
DEC17^2	0.043949	0.034410	1.277217	0.2019
GOODS^2	-1.350898	0.565812	-2.387538	0.0172
SERVICES^2	-1.391582	0.565048	-2.462767	0.0140
HEALTH^2	-1.311842	0.565114	-2.321375	0.0205
INDUSTRIAL^2	-1.346040	0.565745	-2.379234	0.0176
TELECOMMUNICATION^2	-1.304334	0.568914	-2.292675	0.0221
TECHNOLOGY^2	-1.349629	0.564716	-2.389926	0.0171
BASIC_MATERIALS^2	-1.381666	0.564401	-2.448021	0.0146
R-squared	0.115585	Mean dependent var	0.097304	
Adjusted R-squared	0.102262	S.D. dependent var	0.661724	
S.E. of regression	0.626977	Akaike info criterion	1.920020	
Sum squared resid	339.2452	Schwarz criterion	1.996270	
Log likelihood	-827.9289	Hannan-Quinn criter.	1.949184	
F-statistic	8.675841	Durbin-Watson stat	1.989327	
Prob(F-statistic)	0.000000			

To Avoid Earning Decreases

Companies with Incentives

Dependent Variable: DELTAOP
 Method: Least Squares
 Date: 05/23/19 Time: 21:34
 Sample: 1 239
 Included observations: 239

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DELTAREV	1.169562	0.152337	7.677444	0.0000
DECREV	-1.636687	0.283273	-5.777782	0.0000
DEC14	-0.047929	0.056676	-0.845657	0.3986
DEC15	-0.044960	0.052271	-0.860127	0.3906
DEC16	0.060235	0.050434	1.194336	0.2336
DEC17	-0.039974	0.050269	-0.795193	0.4273
GOODS	0.793294	0.196499	4.037139	0.0001
SERVICES	0.810415	0.193020	4.198604	0.0000
HEALTH	0.748914	0.191235	3.916199	0.0001
INDUSTRIAL	0.866785	0.191948	4.515725	0.0000
TECHNOLOGY	0.817149	0.194576	4.199641	0.0000
TELECOMMUNICATI...	0.828777	0.241102	3.437446	0.0007
BASIC_MATERIALS	0.796071	0.200173	3.976914	0.0001
C	-0.839966	0.200317	-4.193181	0.0000
R-squared	0.242388	Mean dependent var		0.102910
Adjusted R-squared	0.198615	S.D. dependent var		0.281248
S.E. of regression	0.251773	Akaike info criterion		0.136216
Sum squared resid	14.26270	Schwarz criterion		0.339858
Log likelihood	-2.277792	Hannan-Quinn criter.		0.218278
F-statistic	5.537384	Durbin-Watson stat		1.910565
Prob(F-statistic)	0.000000			

Heteroskedasticity Test: White

F-statistic	0.409635	Prob. F(13,225)	0.9655
Obs*R-squared	5.525820	Prob. Chi-Square(13)	0.9617
Scaled explained SS	311.1478	Prob. Chi-Square(13)	0.0000

Test Equation:
 Dependent Variable: RESID^2
 Method: Least Squares
 Date: 05/23/19 Time: 21:32
 Sample: 1 239
 Included observations: 239

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.155057	0.548950	-0.282462	0.7778
DELTAREV^2	0.181203	0.618064	0.293179	0.7697
DECREV^2	-0.064479	0.619370	-0.104104	0.9172
DEC14^2	0.003039	0.154292	0.019696	0.9843
DEC15^2	-0.003487	0.141806	-0.024589	0.9804
DEC16^2	0.213395	0.137694	1.549776	0.1226
DEC17^2	0.001610	0.136526	0.011793	0.9906
GOODS^2	0.162710	0.552329	0.294588	0.7686
SERVICES^2	0.119945	0.547208	0.219195	0.8267
HEALTH^2	0.115257	0.545945	0.211115	0.8330
INDUSTRIAL^2	0.229448	0.540814	0.424264	0.6718
TECHNOLOGY^2	0.090726	0.547764	0.165630	0.8686
TELECOMMUNICATION^2	0.083113	0.669592	0.124125	0.9013
BASIC_MATERIALS^2	0.156067	0.559166	0.279106	0.7804
R-squared	0.023121	Mean dependent var		0.059677
Adjusted R-squared	-0.033321	S.D. dependent var		0.674108
S.E. of regression	0.685247	Akaike info criterion		2.138717
Sum squared resid	105.6518	Schwarz criterion		2.342360
Log likelihood	-241.5767	Hannan-Quinn criter.		2.220780
F-statistic	0.409635	Durbin-Watson stat		2.007171
Prob(F-statistic)	0.965550			

Companies with no incentives

Dependent Variable: DELTAOP
 Method: Least Squares
 Date: 05/23/19 Time: 21:47
 Sample: 1 721
 Included observations: 721
 White heteroskedasticity-consistent standard errors & covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DELTAREV	0.536699	0.096714	5.549314	0.0000
DECREV	-0.435747	0.147269	-2.958843	0.0032
DEC14	0.000206	0.041116	0.005011	0.9960
DEC15	0.024249	0.025690	0.943898	0.3455
DEC16	-0.011868	0.035102	-0.338097	0.7354
DEC17	0.012499	0.034415	0.363184	0.7166
GOODS	0.090378	0.265904	0.339891	0.7340
SERVICES	0.114707	0.264556	0.433583	0.6647
HEALTH	0.093531	0.264903	0.353075	0.7241
INDUSTRIAL	0.096156	0.264189	0.363965	0.7160
TECHNOLOGY	0.119058	0.265058	0.449175	0.6534
TELECOMMUNICATI...	0.050748	0.273153	0.185786	0.8527
BASIC_MATERIALS	0.107423	0.264234	0.406543	0.6845
C	-0.095025	0.258155	-0.368094	0.7129
R-squared	0.166425	Mean dependent var		0.079146
Adjusted R-squared	0.151098	S.D. dependent var		0.353248
S.E. of regression	0.325468	Akaike info criterion		0.612120
Sum squared resid	74.89198	Schwarz criterion		0.701064
Log likelihood	-206.6692	Hannan-Quinn criter.		0.646455
F-statistic	10.85802	Durbin-Watson stat		2.203722
Prob(F-statistic)	0.000000	Wald F-statistic		3.821022
Prob(Wald F-statistic)	0.000006			

Heteroskedasticity Test: White

F-statistic	13.48553	Prob. F(13,707)	0.0000
Obs*R-squared	143.2599	Prob. Chi-Square(13)	0.0000
Scaled explained SS	2163.573	Prob. Chi-Square(13)	0.0000

Test Equation:

Dependent Variable: RESID^2
 Method: Least Squares
 Date: 05/23/19 Time: 21:49
 Sample: 1 721
 Included observations: 721
 White heteroskedasticity-consistent standard errors & covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.422018	0.540987	2.628562	0.0088
DELTAREV^2	0.116682	0.024919	4.682508	0.0000
DECREV^2	-0.093144	0.024084	-3.867437	0.0001
DEC14^2	0.142744	0.078552	1.817196	0.0696
DEC15^2	-0.005947	0.030682	-0.193840	0.8464
DEC16^2	0.069414	0.043225	1.605852	0.1088
DEC17^2	0.062330	0.045193	1.379206	0.1683
GOODS^2	-1.419092	0.557167	-2.546978	0.0111
SERVICES^2	-1.460119	0.554213	-2.634581	0.0086
HEALTH^2	-1.379539	0.558026	-2.472176	0.0137
INDUSTRIAL^2	-1.452909	0.555165	-2.617077	0.0091
TECHNOLOGY^2	-1.406323	0.555619	-2.531093	0.0116
TELECOMMUNICATION^2	-1.373705	0.558913	-2.457814	0.0142
BASIC_MATERIALS^2	-1.460684	0.554883	-2.632418	0.0087
R-squared	0.198696	Mean dependent var		0.103872
Adjusted R-squared	0.183962	S.D. dependent var		0.582580
S.E. of regression	0.526273	Akaike info criterion		1.573233
Sum squared resid	195.8129	Schwarz criterion		1.662177
Log likelihood	-553.1504	Hannan-Quinn criter.		1.607568
F-statistic	13.48553	Durbin-Watson stat		2.073773
Prob(F-statistic)	0.000000			

Appendix 2

Correlation

Covariance Analysis: Spearman rank-order
 Date: 05/23/19 Time: 22:37
 Sample: 1 960
 Included observations: 960

Correlation Probability	DELTAOP	DELTAREV	DECREV	DEC14	DEC15	DEC16	DEC17	GOODS	SERVICES	HEALTH	INDUSTRIAL	TECHNOL...	TELECOM...	BASIC MA...
DELTAOP	1.000000 ----													
DELTAREV	0.643720 0.0000	1.000000 ----												
DECREV	0.470281 0.0000	0.747324 0.0000	1.000000 ----											
DEC14	-0.061390 0.0572	0.006531 0.8398	0.017880 0.5800	1.000000 ----										
DEC15	0.082336 0.0107	0.084554 0.0088	0.029549 0.3604	-0.250000 0.0000	1.000000 ----									
DEC16	-0.036526 0.2582	-0.092852 0.0040	-0.083354 0.0098	-0.250000 0.0000	-0.250000 0.0000	1.000000 ----								
DEC17	-0.002725 0.9328	-0.033068 0.3061	-0.010449 0.7464	-0.250000 0.0000	-0.250000 0.0000	-0.250000 0.0000	1.000000 ----							
GOODS	-0.052394 0.1047	-0.049190 0.1277	0.035236 0.2754	0.000000 1.0000	0.000000 1.0000	0.000000 1.0000	0.000000 1.0000	1.000000 ----						
SERVICES	-0.007808 0.8091	-0.049656 0.1242	0.029717 0.3577	0.000000 1.0000	0.000000 1.0000	0.000000 1.0000	0.000000 1.0000	-0.132453 0.0000	1.000000 ----					
HEALTH	0.048222 0.1354	0.065455 0.0426	-0.023969 0.4582	0.000000 1.0000	0.000000 1.0000	0.000000 1.0000	0.000000 1.0000	-0.153773 0.0000	-0.165851 0.0000	1.000000 ----				
INDUSTRIAL	-0.013589 0.6741	-0.010219 0.7518	0.015870 0.6234	0.000000 1.0000	0.000000 1.0000	0.000000 1.0000	0.000000 1.0000	-0.244899 0.0000	-0.264135 0.0000	-0.306650 0.0000	1.000000 ----			
TECHNOLOGY	0.109276 0.0007	0.106206 0.0010	0.055638 0.0849	0.000000 1.0000	0.000000 1.0000	0.000000 1.0000	0.000000 1.0000	-0.141759 0.0000	-0.152894 0.0000	-0.177504 0.0000	-0.282693 0.0000	1.000000 ----		
TELECOMMUNIC...	-0.047711 0.1396	-0.068292 0.0344	-0.073980 0.0219	0.000000 1.0000	0.000000 1.0000	0.000000 1.0000	0.000000 1.0000	-0.057303 0.0760	-0.061804 0.0556	-0.071752 0.0262	-0.114272 0.0004	-0.066146 0.0405	1.000000 ----	
BASIC_MATERIA...	-0.066775 0.0386	-0.046253 0.1521	-0.034613 0.2840	0.000000 1.0000	0.000000 1.0000	0.000000 1.0000	0.000000 1.0000	-0.105661 0.0010	-0.113961 0.0004	-0.132304 0.0000	-0.210707 0.0000	-0.121967 0.0002	-0.049302 0.1269	1.000000 ----

Appendix 3

The following explanations are extracted from Hofstede website:

“Power Distance

Power Distance is defined as the extent to which the less powerful members of institutions and organisations within a country expect and accept that power is distributed unequally.

Individualism

The fundamental issue addressed by this dimension is the degree of interdependence a society maintains among its members. It has to do with whether people’s self-image is defined in terms of “I” or “We”.

Masculinity

A high score (Masculine) on this dimension indicates that the society will be driven by competition, achievement and success, with success being defined by the winner / best in field – a value system that starts in school and continues throughout organisational life.

A low score (Feminine) on the dimension means that the dominant values in a society are caring for others and quality of life. A Feminine society is one where quality of life is the sign of success and standing out from the crowd is not admirable. The fundamental issue here is what motivates people, wanting to be the best (Masculine) or liking what you do (Feminine).

Uncertainty Avoidance

The extent to which the members of a culture feel threatened by ambiguous or unknown situations and have created beliefs and institutions that try to avoid these is reflected in the score on Uncertainty Avoidance.

Long Term Orientation

This dimension describes how every society has to maintain some links with its own past while dealing with the challenges of the present and future, and societies prioritise these two existential goals differently.

Indulgence

One challenge that confronts humanity, now and in the past, is the degree to which small children are socialized. Without socialization we do not become “human”. This dimension is defined as the extent to which people try to control their desires and impulses, based on the way they were raised. Relatively weak control is called “Indulgence” and relatively strong control is called “Restraint”. Cultures can, therefore, be described as Indulgent or Restrained.”