

Explanatory Factors for Asymmetric Cost Behaviour: Evidence from Jordan

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This study aimed to explore the explanatory factors associated with agency problems in the phenomenon of asymmetric cost behaviour in Jordanian companies, where the effect of board compensation, free cash flow, company size and internal control quality on the level of cost stickiness in industrial and service companies in Jordan were explored during the period 2009-2019 in Jordanian companies. The asymmetric cost behaviour was measured using the Weiss (2010) model. The study found that there is no effect of board compensation on the level of costs stickiness. The results also showed that there is an effect of the free cash flow ratio available to Jordanian companies on cost stickiness; also results showed that the size of firms is an important explanatory factor in cost stickiness. Regarding the quality of the internal control, the study indicates that the decrease in the quality of the internal control system increases the degree of cost stickiness.

Key words: *Asymmetric Cost Behaviour, Board Compensation, Costs Stickiness, Free Cash Flow, Internal Control Quality, Jordan*

Introduction

The literature conducted in the field of cost behaviour, up to the beginning of discussions on sticky costs, in the mid-1990s assumes that costs are divided into fixed or variable costs, where the variable part changes proportionally with changes in the level of activity, while fixed costs remain unchanged with changes in activity level (Banker & Byzalov, 2014). In other words, the authors at the time considered that differences in costs were driven by the extent of the change in the level of activity, and not by its direction (increase or decrease). This

understanding of cost behaviour is a simplification of reality and away from real cost behaviour models in companies (Steliaros, Thomas & Calleja, 2006). In a way that differs from the traditional view that assumes linearity and proportionality of cost behaviour, many studies have documented empirical evidence for the asymmetry of cost behaviour. However, the Anderson, Banker, and Janakiraman (2003) study is one of the first studies that documented the asymmetric cost behaviour in the accounting literature. This study developed the topic by attributing the relationship between cost and volume to the trend of changes in activity volume, which was called Sticky cost.

Anderson et al. (2003) in their paper, presented the most intuitive explanation for asymmetric cost behaviour, which is asymmetric friction in resource adjustments. That is, the upward adjustment is less restrictive than the downward adjustment with respect to demand changes, as the existence of costs arising from adjusting resources in response to a decrease in the level of activity, leads managers to decide to tradeoff between the costs resulting from maintaining redundant resources and adjusting resources. When demand decreases and managers abandon resource adjustment, production capacity cuts and costs of maintaining unused capacity such as wages or depreciation occur. On the other hand, if management decides to reduce redundant resources, adjustment costs arise, which include termination payments, costs resulting from early cancellation of contracts and disposal costs. In addition, subsequent costs occur in the future by adjusting when the level of activity increases in the future. For example: research and recruitment costs for new employees, transaction costs for negotiations of new contracts with suppliers, installation costs and allocation of facilities, and adjustment costs, also including organisational costs such as erosion of human capital and consequently reduced productivity resulting from reduced motivation or disruption of work teams. In this context, a large number of subsequent studies examined the causes, determinants and consequences of asymmetric cost behaviour in order to obtain further confirmation of the phenomenon.

In light of the increasing sophistication of research on the asymmetric cost behaviour, Malik (2012) conducted a literature review and synthesis in which he classified the literature on sticky costs into three successive levels: The first level includes studies that focus on the search for evidence to validate scientific validity in different contexts (spatial and temporal for different cost elements and activity levels) of the existence of asymmetric cost behaviour. The second level aims to identify the internal and external factors to explain the phenomenon of asymmetric costs. Finally, the third level includes studies that seek to identify the consequences of asymmetric cost behaviour in various aspects of analyst expectations, market reactions and earnings management. With regard to the second level, Malik (2012) identifies opportunities to conduct research in order to identify the factors that explain asymmetric cost behaviour, and suggests that they include new factors that have a significant impact on such an explanation; so the current study fits this theme that is being developed in the literature.

The phenomenon of costs stickiness may occur from the intended administrative decisions, which can be classified as rational or irrational decisions, and here the managerial choice can be viewed as rational when management works for the benefit of the company, that is, rational from the company's perspective, and irrational otherwise (Bosch et al., 2017). In this study we will focus on the impact of irrational decisions. According to the behavioural interpretation of costs stickiness, managers' overconfidence increases the costs stickiness, as managers who have excessive confidence tend to overestimate future sales, and therefore do not adjust excess resources in response to declining sales at an economically reasonable level, and this results in a higher degree of costs stickiness. In this context, Habib and Hasan (2019) argue that managers who have great confidence will exaggerate their ability to influence future sales in addition to the accuracy of their evaluation of future demand, which leads to overestimating future sales, as based on psychological findings that show that individuals tend to be overconfident. Habib and Hasan (2019) hypothesised that managerial overconfidence increases the degree of costs stickiness. Whereas the behavioural explanation of asymmetric cost behaviour can be accounted for due to management failure. According to the agency's interpretation costs stickiness arises through the processes of fully capable and qualified managers, but they are driven by their own interests as the self-interested managers maximise their private benefit even if their actions diverge from the interests of the shareholders (Jensen and Meckling, 1976). Thus, it is irrational from the firm's perspective.

Study Problem

Previous literature has identified two major drivers of agency for asymmetric cost behaviour: empire building incentives and earnings management incentives (Hussien, 2021). Empire building describes the agency problem in administrative activities aimed at benefiting from the size of the company (Jensen, 1986). Because of the fear of losing prestige, power, or compensation, managers view the company's growth beyond its optimum size or retain excess resources, resulting in an ineffective high level of costs stickiness. Chen, Lu, and Sougiannis (2012) empirically addressed this question and documented that cost asymmetry increases with incentives to build a manager's empire and weakens this association with stronger corporate governance (for example with number of institutional shareholders, smaller board size or percentage of Independent Directors). Based on past findings showing that agency considerations compel managers to reduce costs to achieve profit targets, Kama and Weiss (2013) argue that self-interested managers (i.e. maximising their own benefit rather than company value) will reduce redundant resources, even if the decline in demand is assessed as temporary and downward adjustment is not optimal in terms of firm value maximisation.

In contrast to the intended and deliberate managerial decisions to conserve unused resources when the level of activity decreases, costs stickiness may occur as a result of previous administrative actions or under other conditions which cannot be affected by the management (Banker & Byzalov, 2014). Guenther, Riehl, and Rößler (2014) argue that job requirements

and social legislation for separation exclude cost adjustment immediately in a period of low sales. In addition, other institutions such as a supervisory board or a work council may restrict management in reducing excess resources, thus legal restrictions lead to costs stickiness which is inevitable and unintended. Abu-Serdaneh (2014) found that the degree of stickiness in corporate costs is related to the level of asset intensity and free cash flow in Jordanian companies. Magheed (2016) also found an effect of company characteristics on the degree of costs stickiness in Jordanian companies, hence this study is to identify the explanatory factors for sticky costs in Jordanian companies.

Literature Review

Empirical Models of Asymmetric Cost Behaviour

First: Anderson et al. (2003) Model:

Anderson et al. (2003) introduces an experimental estimation model called the ABJ model. The model indicates changes in selling, general, and administrative (SG&A) costs attributable to concurrent changes in net sales revenue. More specifically, the dependent variable is the logarithmic ratio of current SG&A attributable to SG&A from the previous period. The independent variable is the logarithmic ratio of current revenue attributable to past revenue. Although the ABJ model measures the stickiness of SG&A costs, their model can be applied to examine other components different from SG&A costs, or other types of costs. Various subsequent studies have modified the ABJ model by introducing additional determinants of cost stickiness and / or examining different types of costs. In this way, Banker and Byzalov (2014) provides a modified version of the generalised ABJ model, which also allows for the incorporation of discretionary management practice by adding resources. Balakrishnan, Labro, and Soderstrom (2014) suggest another specification of the ABJ model, which is an expansion of slowed sales rather than total costs in order to control the effects of sticky costs in the cost stickiness level model.

Banker and Byzalov (2014) named other potential metrics such as assets, market value, or book value of stocks. Other specifications of the ABJ model are provided by Banker et al. (2014). The authors run a two-period model, which clearly includes management expectations of future sales based on previous sales decline or sales increase. Whereas, the ABJ model captures only the weighted average of two specific processes, namely: stickiness of cost contingent on an increase in previous sales and an anti-stickiness of cost conditional on a decrease in previous sales; The two-period model allows for superior interpretation and prediction of cost behaviour by explicitly integrating past sales changes.

Second: Weiss (2010) Model:

Unlike the ABJ model, the Weiss (2010) model provides a company-specific and period-specific measure of cost stickiness. For this purpose, the Weiss model takes into account costs and sales changes in the last four quarters of the firm, and based on data for the last quarter as sales decreased and the fourth quarter as sales increased, for the specified quarters. The model builds the difference in logarithmic ratios of cost changes. The Weiss model calculates a cost stickiness scale based on total costs for two reasons, namely: First it examines the effect of asymmetric cost behaviour on the accuracy of analysts' earnings forecasts, which are based on an estimate of total costs. Secondly, applying total costs instead of the various cost components eliminates the problem of managerial estimation with regard to cost classification.

However, the cost stickiness scale of Weiss's (2010) model can be estimated for different cost components, for example, Rouxelin, Wongsunwai, and Yehuda (2018) calculate the cost stickiness measure of the sum of the SG&A costs and the cost of goods sold (COGS) to measure labor costs. The Weiss model uses SG&A and COGS to verify compatibility with other literature. The applicability for the Weiss model degree of stickiness leads in loss of observations in periods when sales and profits move in the opposite direction. This is because the costs are assumed to increase with the increase in the level of activity, and another data loss arises when the company exhibits a significant decrease in sales or large increases in sales in four consecutive quarters. Despite some limitations, Weiss's cost-stickiness model provides a wide range of empirical analysis because it makes it possible to classify firms into stickiness and anti-stickiness, enabling separate analysis of sub-samples, as well as allowing for an examination of unequal cost behaviour as an explanatory variable for other outcomes.

Hypotheses Development

Board of Directors Compensation

One of the opportunistic managerial behaviours is the use of available resources beyond the optimum level. The stronger the motivation of managers to build an empire, the greater the degree of cost asymmetry (Chen et al., 2012). According to agency theory, to overcome the opportunistic behaviour of managers, their rewards are linked to the level of company profits, which are a reflection of management decisions (Shipeng et al., 2019). Given the incentive associated with achieving a specific level of profit, managers tend to cut resources rapidly in response to declining sales, although the decrease may be temporary (Kama & Weiss, 2013). Therefore, when revenue decreases, managers are faced with two options that they immediately adjust the cost in proportion to achieving a certain level of profits (effective motive) or keeping the cost relatively constant to maintain the empire they are building (behaviour of cost stickiness).

Dierynck, Landsman and Renders (2012) found that the degree of cost adhesion is lower when managers need to achieve or exceed the profit goal. This result indicates that linking management's rewards to achieving certain levels of profits may have an impact on the level of sticky costs, as the unused costs have to be reduced when managers face profit pressure. Mo, Park, and Kim (2018) also finds that CEO pension funds, as internal corporate debt, will reduce cost stickiness, implying that cost stickiness is primarily driven by the CEO's structure. In Jordan, Hussien (2021) found that the degree of cost stickiness is affected by management compensation in the form of performance-related bonuses, but fixed salaries had no effect on the degree of cost stickiness. Based on the previous arguments, the following hypothesis can be formulated:

H01: The Board of Directors Compensation has no effect on the level of cost stickiness in the Jordanian companies.

Free Cash Flow

The degree of operating leverage as a measure of risk can be abandoned by replacing the elasticity of operating profit associated with production with the elasticity of free cash flow (FCF) by looking at random external demand shocks to the firm's products (fluctuations in the level of activity) as a source of risk (Duchin et al., 2017). The risk measurement results in an effective boundary between the expected cash flow risk and the associated management risks (Aharon et al., 2019). According to precautionary saving theory, in order to limit the negative impact of future disruptions in the chain of capital flows on firms and meet future production and operating needs, managers have incentives to allocate financial assets reasonably over consecutive periods (Duchin et al., 2017). As a result, corporate financing options can help reduce the existing free cash flow. Reducing free cash flow will reduce managers' motivation to build an empire (Jensen & Meckling, 1976). This leads to a decrease in managers' tendencies towards excessive expansion of production capacity when the level of activity increases (increase in sales volume), and instead they seek to get rid of the redundant resources and the level of activity decreases (Kama & Weiss, 2013).

Just as the companies' tendency to invest in short-term financial assets contributes to reducing financial distress and operational risks, investment in long-term financial assets will make companies choose more vulnerable to problems and financial crises (Zhang & Sun, 2014). Accordingly, the increased risk of bankruptcy will push managers to balance sales income and expenditures when making financing decisions (Sung et al., 2017), thus, influencing the level of costs stickiness. Managers with empire-building incentives can seek to grow their companies beyond optimal capacity by relying on free cash flow. As there is a large amount of free cash flow, managers may invest more in operating costs with the goal of maximising their personal benefits. During a downturn, managers may be hesitant to adjust resources related to operating costs depending on the level of free cash flow. When the activity increases, managers may spend more on operating costs depending on availability of free cash flow (Thomas & Teru,

2020). Thus, free cash flow is expected to have a direct positive relationship with degree of cost stickiness. Chen et al. (2012) found that severe agency problems caused by excessive free cash flow would encourage managers to "build an empire" and shift SG&A costs from their optimum level. Based on the previous arguments, the following hypothesis can be formulated:

H02: The free cash flow has no effect on the level of cost stickiness in the Jordanian companies.

Company Size

Bosch and Blandón (2011) state that the larger the firm, the less flexible the resources are available, that is, large firms have a more rigid (fixed) cost structure than small firms. As a result, stricter structures exhibit greater cost asymmetry; as with lower revenues, costs are not adjusted in the same proportion. Weiss (2010) showed that with the increase in company size, both tactical flexibility and operational flexibility diminish. In this context, small firms can be more efficient than large firms in adapting to market fluctuations. Consequently, the degree of costs stickiness decreases. Fiegenbaum and Karnani (1991) argue that small firms can trade off cost inefficiency for size flexibility, and are therefore more willing to adjust their output. Nor et al. (2007) found that small firms apply more flexible production methods, which rely heavily on variable costs. Several studies (Kwon, 2018; Lopatta et al., 2020) have shown an effect of firm size on cost stickiness level. Chen et al. (2012) also found that firm size is one of the factors that affect a firms' ability to respond to changes in the level of activity through resource adjustments. Based on the previous arguments, the following hypothesis can be formulated:

H03: The size of the company has no effect on the level of cost stickiness in the Jordanian companies.

Internal Control Quality

When companies suffer from internal control problems, their ability to produce and communicate accurate information to managers in a timely manner to make decisions about resource management is impaired (Abu Saleem et al., 2019). Real options theory suggests that managers in companies with weak internal control systems may delay resource adjustments when the level of activity decreases, as they wait until more information becomes available about future opportunities for their business, especially in an uncertain environment (Kim et al., 2019). Based on this theory, it can be said that costs in companies with weak internal control systems have a significant degree of stickiness. This is due to information related internal control problems. Feng et al. (2009) found a positive relationship between the effectiveness of internal control and the accuracy of administrative guidance, which indicates that the weak effectiveness of internal control may cause errors in the internal management reports. This discussion indicates that weak internal control systems cause company managers to rely on low-quality internal reports to make their decisions. These poor-quality reports increase the uncertainty about future levels of activity (Chen et al., 2019). Therefore, it is considered logical

for these managers to keep resources that are not fully exploited, which leads to an increase in the degree of stickiness in costs. Strong internal control also serves as an effective oversight mechanism that can alleviate agency problems (Jensen & Meckling 1976). When the company lacks an effective internal control system, the management has greater opportunities to engage in opportunistic behaviours, such as harnessing the company's resources to increase its own compensation beyond the normal level and excessive spending (such as entertainment and travel), which would have been better reduced in the event of recession and a lower level of activity (Kim et al., 2019). However, opportunistic managers are not inclined to reduce these expenditures in firms with ineffective internal control systems.

Chae and Chung (2015) pointed out that the large number of employees assigned to the internal control department can lead to a decrease in the degree of cost stickiness. This result indicates that agency problems can be controlled effectively due to the excellent efficiency of control when more employees than the internal accounting control system, and who are directly involved in preparing financial reports, play a greater role in reducing the stickiness level of cost compared to other departments. Hadi et al. (2018) indicated that poor quality of internal control will also cause confusion in cost management, which leads to increased operational risks and increased cost stickiness. Cheng et al. (2018) and Hadi et al., (2018) indicated that the weakness of the internal control system leads to chaos in cost management, and ultimately leads to an impact on the level of cost stickiness. Based on the previous arguments, the following hypothesis can be formulated:

H04: The Internal Control Quality has no effect on the level of cost stickiness in the Jordanian companies.

Study Methodology

Measuring Variables

Cost Stickiness

To measure the costs stickiness of the study sample companies, the Weiss (2010) Model was used. The Weiss model deals with changes in sales and changes in costs on a quarterly basis, and builds the difference in logarithmic ratios of changes in cost. The following equation expresses the model used:

$$STICKY_{i,t} = - \left[\log \left(\frac{\Delta COST}{\Delta SALE} \right)_{i,\underline{t}} - \log \left(\frac{\Delta COST}{\Delta SALE} \right)_{i,\bar{t}} \right] \text{ With } \underline{t}, \bar{t} \in \{t, \dots, t - 3\}.$$

Where:

$STICKY_{i,t}$: Costs stickiness on a quarterly basis for the company (i) in the quarter (t).

$\underline{\tau}$: Recent quarter of the last four quarters with a decrease in the sales.

$\overline{\tau}$: Recent quarter of the last four quarters with an increase in the sales.

$\Delta SALE$: $SALE_{i,t} - SALE_{i,t-1}$.

$\Delta COST$: $(SALE_{i,t} - EARINGS_{i,t}) - (SALE_{i,t-1} - EARINGS_{i,t-1})$.

$EARINGS$: Operating income.

Therefore, the lower value of *STICKY* means a higher level of costs stickiness. The logarithmic scale is driven by cross-firm comparability and mitigation of potential heteroscedasticity.

Compensation (COMP): Compensation was measured by the total remuneration and salaries of members of the Board of Directors (Hussien, 2021).

Free cash flow ratio (FCF): Free cash flow ratio was measured by dividing the free cash flow by the total assets (Magheed, 2016).

Company size (SIZE): A firm's size is measured in the natural logarithm of total assets (Zraqat, 2019).

Asset intensity (AsI): Asset intensity is measured by dividing fixed assets by sales (Anderson et al., 2003).

Internal Control Quality (ICO): Internal control quality was measured as a dummy variable equal to 1 if the external auditor indicated that the company's internal control over the financial reports is effective and 0 otherwise. Data was obtained from reviewing the annual reports of auditors in the study sample companies (Kim et al., 2019).

Sample Selection

The sample in this study consists of companies listed on the Amman Stock Exchange from 2009 to 2019. The sample was selected according to the following criteria. First, in order to avoid the effects of outliers, listed companies with different characteristics were excluded from the financial statements. Second, financial companies (banks and insurance companies) were excluded because their financial statements did not match those of other listed companies (Hartlieb et al., 2020). Third, the companies whose financial data are not available to measure the study variables were excluded. Fourth, companies that changed the end of their fiscal year were excluded, and finally, companies that were suspended from trading for a period of more than six months were excluded. After applying the previous conditions, 21 industrial companies and 97 service companies were excluded, and thus the number of companies in the final sample of the study reached 35 industrial companies and 42 service companies.

Results

DESCRIPTIVE STATISTICS

Table 1: Descriptive Statistics

Variable	Mean	St.dev	Max	Min
<i>STICKY</i> (×)	0.09	0.57	2.58	-2.57
<i>COMP</i> (<i>JOD</i>)	155,7332	164,428	1,147,055	800
<i>FCF</i> (×)	-0.038	0.089	0.363	-0.506
<i>TOTAL ASSETS</i> (<i>JOD</i>)	118,261,877	265,654,339	1,798,635,967	1,616,323
<i>ROA</i> (%)	2.78	8.55	40.38	-31.44
<i>LEV</i> (%)	34.44	21.78	95.66	1.80
<i>AsI</i> (×)	1.76	8.29	172.45	0.02

Table (1) presents the descriptive statistics measures for the study variables, as we notice companies differing among themselves in the degree of costs stickiness. The general arithmetic mean indicated the presence of a relatively high stickiness in corporate costs during the period. It was also found that the size of compensation for management in companies varies clearly, and this may be due to the difference in the size of the company's business and its profits and the size of the board of directors. As for the free flow rate, it varied significantly, and the general average for this ratio was negative, which may indicate the weakness of companies in providing free cash in excess of their operating expenses and capital expenditures. Total assets, return on assets, and financial leverage confirmed the differences in companies in terms of the ability to provide resources, generate profits and the financing policies that followed. As for asset intensity, it showed the wide variation between companies in using their fixed assets to generate revenues from the basic activity.

Empirical Results

This study employs the econometric analysis using panel data; before estimating the study model, multicollinearity should be tested, in addition to Breusch-pagan LM and Hausman tests; the results are shown in table 2.

Table 2: Breusch-pagan LM and Hausman tests

Variables	VIF	Hypothesis	Berush-Pagan LM Test	Hausman Test
<i>COMP</i>	1.777	H01	Chi ² = 296.446	Chi ² = 1.322
<i>FCF</i>	1.837		p-value = 0.000	p-value = 0.858
<i>SIZE</i>	1.902	H02	Chi ² = 301.598	Chi ² = 1.247
<i>ICQ</i>	1.997		p-value = 0.000	p-value = 0.870
<i>ROA</i>	1.780	H03	Chi ² = 173.316	Chi ² = 4.259
<i>LEV</i>	1.885		p-value = 0.000	p-value = 0.372
<i>AsI</i>	1.851	H04	Chi ² = 301.637	Chi ² = 1.593
<i>SECTOR</i>	1.962		p-value = 0.000	p-value = 0.810

The results of the variance inflation factor (VIF) were less than 5. This shows that there is no multicollinearity problem among independent variables. Moreover, the Berush-Pagan LM & Hausman tests show that the random effect model is the best for estimating study models.

HYPOTHESIS TESTING

H01: The Board of Directors compensation has no effect on the level of cost stickiness in the Jordanian companies.

Table 3: The results of the first hypothesis test

Variable	Coefficient	Std.Error	t-Statistic	Prob.
<i>COMP</i>	-0.005	0.006	-0.839	0.402
<i>ROA</i>	0.007	0.002	4.781	0.000
<i>LEV</i>	-0.001	0.000	-3.336	0.001
<i>AsI</i>	0.000	0.001	0.280	0.779
<i>SECTOR</i>	-0.050	0.019	-2.606	0.010
<i>C</i>	0.200	0.038	5.257	0.000
R-squared		0.085		
Adjusted R-squared		0.075		
F-statistic		8.382		
Prob(F-statistic)		0.000		

The test of the first hypothesis showed that there was no significant effect of the compensation of the board of directors on the degree of costs stickiness. The effect of *COMP* reached an amount of -0.005 and was not significant, as $t = -0.839$, and with a significance level (Prob. = 0.402).

Contrary to many literatures such as Dierynck (2012), this result indicates that there is no effect of administrative bonuses on the level of cost stickiness; this result may be due to the fact that management compensation in general is in the form of fixed salaries, which reduces the

incentives of management in achieving a certain level of profits. This is consistent with what Hussien (2021) has reached in Jordanian companies, where it has concluded that fixed salaries do not constitute an incentive for management in adjusting resources, and this result can be explained in light of what he indicated (Shipeng et al., 2019; Kama & Weiss, 2013). Ensure that managers immediately adjust the cost in proportion to achieving a certain level of profits (effective motive), and in Jordan due to the absence of such an incentive, compensation will not have an effect on the level of cost stickiness.

H02: The free cash flow has no effect on the level of cost stickiness in the Jordanian companies.

Table 4: The results of the second hypothesis test

<i>Variable</i>	<i>Coefficient</i>	<i>Std.Error</i>	<i>t-Statistic</i>	<i>Prob.</i>
<i>FCF</i>	-0.001	0.0003	-2.364	0.019
<i>ROA</i>	0.006	0.001	4.767	0.000
<i>LEV</i>	-0.001	0.0002	-4.170	0.000
<i>AsI</i>	0.000	0.001	0.320	0.749
<i>SECTOR</i>	-0.042	0.016	-2.626	0.009
<i>C</i>	0.179	0.028	6.509	0.000
<i>R-squared</i>		0.097		
<i>Adjusted R-squared</i>		0.087		
<i>F-statistic</i>		9.760		
<i>Prob(F-statistic)</i>		0.000		

The second hypothesis test showed the presence of the significant effect of free cash flow on the degree of costs stickiness, and the FCF effect reached -0.001, which is a negative significant effect, as $t = -2.364$, and with a level of significance $\text{Prob.} = 0.019$.

This result indicates the effect of the free cash flow ratio available to Jordanian companies on the degree of stickiness of costs, and this result is related to the financing decisions of the companies, as companies seek to differentiate between effective limits between expected cash flow risks and associated administrative risks (Aharon et al., 2019). The decrease in free cash flow will reduce managers' motivation to build an empire, which leads to a decrease in managers' tendencies towards excessive expansion in production capacity when the level of activity increases, and instead they seek to get rid of the redundant resources and the level of activity decreases (Kama & Weiss, 2013). Also, increasing free cash flow may lead managers to increase spending on operating costs aimed at maximising their personal benefits (Thomas & Teru, 2020). This finding is also consistent with Chen et al. (2012) who indicated that the agency's severe problems stemming from increased free cash flow will encourage managers to "build an empire" and shift SG&A costs from their optimum level.

H03: The size of the company has no effect on the level of cost stickiness in the Jordanian companies.

Table 5: The results of the third hypothesis test

<i>Variable</i>	<i>Coefficient</i>	<i>Std.Error</i>	<i>t-Statistic</i>	<i>Prob.</i>
<i>SIZE</i>	0.038	0.010	3.675	0.000
<i>ROA</i>	0.006	0.002	3.882	0.000
<i>LEV</i>	-0.002	0.0005	-4.593	0.000
<i>AsI</i>	0.001	0.001	0.745	0.457
<i>SECTOR</i>	-0.063	0.021	-2.984	0.003
<i>C</i>	-0.421	0.163	-2.587	0.010
<i>R-squared</i>		0.102		
<i>Adjusted R-squared</i>		0.092		
<i>F-statistic</i>		10.235		
<i>Prob(F-statistic)</i>		0.000		

The third hypothesis test showed the presence of the significant effect of the size of the company on the degree of costs stickiness, and the effect of size amounted to 0.038, which is a positive significant effect, as $t = 3.675$, and with the level of significance $\text{Prob.} = 0.000$.

This result indicates that the level of cost stickiness is affected by the size of the company in the case of Jordan, as small companies have the ability to adjust their resources in response to the volume of activity; this reduces the degree of stickiness in costs with the small size of the company (Bosch and Blandón, 2011), which is consistent with what Weiss (2010) pointed out, that the decrease in tactical and operational flexibility coincides with the large size of companies; this leads to an increase in the degree of costs stickiness in large-sized companies. This result is in line with the findings of previous literature such as Kwon, 2018; Lopatta et al., 2020.

H04: The Internal Control Quality has no effect on the level of cost stickiness in the Jordanian companies.

Table 6: The results of the fourth hypothesis test

<i>Variable</i>	<i>Coefficient</i>	<i>Std.Error</i>	<i>t-Statistic</i>	<i>Prob.</i>
<i>ICQ</i>	-0.611	0.057	-10.654	0.000
<i>ROA</i>	0.002	0.001	1.044	0.297
<i>LEV</i>	0.000	0.002	0.302	0.763
<i>Asi</i>	-0.001	0.000	-2.012	0.045
<i>SECTOR</i>	0.042	0.061	0.684	0.494
<i>C</i>	0.324	0.117	2.776	0.006
<i>R-squared</i>		0.390		
<i>Adjusted R-squared</i>		0.383		
<i>F-statistic</i>		57.922		
<i>Prob(F-statistic)</i>		0.000		

The fourth hypothesis test showed the presence of the significant effect of the quality of internal control on the degree of costs stickiness, and the ICQ effect reached -0.611, which is a negative significant effect, as $t = -10.654$, and with the level of significance $\text{Prob.} = 0.000$.

This result indicates the effect of the quality of the internal control system on the level of costs stickiness in Jordanian companies, as managers tend to delay resource adjustments in response to changes in the level of activity in companies with weak internal control systems in order to verify information about future business opportunities (Kim et al., 2019; Chen et al., 2019). Therefore, managers keep untapped resources, which leads to an increase in the degree of stickiness in costs. This result is consistent with the findings of Chae and Chung (2015), who indicated that the quality of the internal control system coincides with a lower degree of cost stickiness. This result can also be explained by the fact that the weak quality of internal control will lead to a decrease in the company's ability to manage costs and thus increase operational risks and increase the degree of stickiness in the cost.

Conclusion

This study aimed to explore the explanatory factors associated with agency problems in the phenomenon of asymmetric cost behaviour in Jordanian companies, where the effect of board compensation, free cash flow, company size and internal control quality on the level of cost stickiness in industrial and service companies in Jordan were explored during the period (2009-2019). The study was based on the assumption that managers' behaviour may contribute to the level of cost stickiness due to their different motivations. Agency theory introduces the theoretical dimension of the hypothesised linkages between the studied factors and asymmetric cost behaviour. Managers' decisions to adjust resources in response to changes in levels of activity can be interpreted as a result of the management's intentions to reap personal gain such as building an empire or their attempt to reach a specific profit goal. The asymmetric cost behaviour was measured using the Weiss (2010) model.



The study contributes to the literature on the phenomenon of asymmetric cost behaviour in two ways: First, we identified additional important explanatory factors for the asymmetry in cost behaviour in Jordanian companies. Second, we expanded the literature on explanations of the phenomenon of asymmetric cost behaviour from an agency perspective, thus, linking the theories of financial accounting with management accounting; therefore, it is hoped that this study will be of great benefit to companies and actors in corporate governance by providing a deep understanding of the relationship between agency problems and cost management in companies.

Our results confirm these expectations. Where it was found that there is no effect of board compensation on the level of costs stickiness, because the compensation of management in Jordanian companies is usually in the form of fixed salaries, which reduces the incentives of management to achieve a certain level of profits. Our results also showed that there is an effect of the free cash flow ratio available to Jordanian companies on the degree of cost stickiness, as the decrease in free cash flow will reduce the motivation of managers to build an empire, which leads to a decrease in managers' tendencies towards excessive expansion in production capacity when the level of activity increases. Instead, they seek to eliminate redundant resources when the activity level decreases. The results also showed that the size of firms is an important explanatory factor in cost stickiness, as small firms have the ability to adjust their resources compared to large firms. Regarding the quality of the internal control system, our results indicate that the decrease in the quality of the internal control system increases the degree of cost stickiness, and this result was interpreted given that managers delay resource adjustments in companies with weak internal control systems until they verify information about future opportunities; so they keep untapped resources, which leads to an increase in the degree of cost stickiness.



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