

Passing the buck: transferring unanticipated purchase prices to suppliers and customers

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Abstract

Unanticipated procurement costs due to changes in input factors' market prices and exchange rates are an increasing issue for manufacturers. A popular strategy is transferring these price increases to the supply chain. Based on 12 interviews and a follow-up study, we identified the main enablers for manufacturers to do so.

Keywords: financial supply risks, risk transfer, enablers

Introduction

Over many decades, the purchase prices of industrial input or consumption factors (according to Gutenberg (1983) and Heinen (1992) defined as raw materials, semi-finished goods, finished goods, auxiliary, and operating materials) were apart from some specific commodities rather foreseeable. Based on experience and additional market information, manufacturers were able to estimate the share of material and energy costs on the overall manufacturing costs and thus to plan aspired margins and selling prices. This situation, however, has fundamentally changed during the last 10 to 15 years (Kahl 2011, Rosvold, 2013). Nowadays, due to increasing turbulences on buying markets and financial markets, the prices of plenty of industrial consumption factors are rather volatile, often contradicting manufacturers' planned cost (Kühne 2010, Schoenherr et al. 2012, Zsidisin and Hartley 2012). Particularly, the purchase price components 'market price' and 'exchange rate' lead to increased financial risks (Anderson et al. 2012, Mitchell 2012, Schoenherr et al. 2012). A popular risk mitigation strategy is to fully or partially pass increased prices on to suppliers and customers (Chandy et al. 2012, Shah 2009). Typical mechanisms to do so are long-term contracts with fixed prices on the supply side, flexible contracts with price escalation clauses on the sales side, and selling price adjustments (Kahl 2011, Zsidisin and Hartley 2012). However, it gets more and more challenging for manufactures to apply this strategy (Chandy et al. 2012, Kahl 2011).

The transmission of spontaneous price increases due to unanticipated price shocks and price volatility across markets and supply chains (also called price spillover) is a fairly well examined topic in financial (e.g., So 2001, Souček and Todorova 2014) and agricultural markets (e.g., Assefa et al. 2015, Simioni et al. 2013). Authors in this field generally take a mathematical modelling approach to test markets and supply chains for spillovers. Vertical manufacturing supply chains are, to the best of our knowledge, not yet examined regarding this issue; probably due the fact that these extreme financial supply risks represent a rather nascent issue for the manufacturing industry (cf. Schoenherr et al. 2012). Based on an extensive review of the relevant supply chain risk management (SCRM) and supply risk management (SRM) literature, we found moreover that there is still insufficient knowledge on the factors enabling the empowerment of manufacturing companies (herein shortly called enablers) to push prices to the customer side and withstand price spillover by suppliers. Research on power asymmetry and dependence in the supply chain (e.g., Cox 2001, Kähkönen and Virolainen 2011) provides a good theoretical knowledge base on how to build up different types of power in the supply chain. Nevertheless, to the best of our knowledge, there is no scholarly contribution that examines the power sources for manufacturing companies' ability to transfer unpredictable portions of prices in the supply chain. Accordingly, we formulated the following research question to be answered by this paper:

RQ. What are the enablers that allow manufacturing companies to transfer increased purchase prices of consumption factors to suppliers and customers?

In this way, we not only strive to gain a deeper understanding on why certain companies can enforce the risk mitigation strategy “passing on of spontaneous price increases” better than others and thereby add to SCRM and SRM theory, but also intent to contribute to industry practice. We provide a set of enablers that (a) can be either fostered by companies to improve their risk management and their price transmission ability, or that (b) can be used for a systematic reasoning of the inexperience of the risk mitigation strategy “passing on of price risks” and the need for applying alternative financial risk mitigation strategies.

Literature review

Transmission of unanticipated prices in vertical supply chains

Scholars generally distinguish between price transmissions in the chain that deal with the predictable portions of prices and the unpredictable portions of prices (Assefa et al. 2015). This paper focuses on the latter type. As stated before, price transmission in markets is widely researched topic in the financial and agricultural economics literature. Whereas papers in the financial sector focus on transmission effects across markets (e.g., Musunuru 2014, Salisu and Mobolaji 2013), examinations in the agro-business sector concentrate more on the transmission effects along vertical supply chains. Acosta and Valdes (2014), for instance, study vertical price transmission between wholesalers and small dairy producers in Panama. They show that there is a unidirectional price transmission from producers to wholesalers and that the price transmission is asymmetric depending on whether prices are increasing or decreasing. Buguk et al. (2003) test univariate volatility spillovers for prices in the catfish supply chain. They find a strong transmission from feeding material (corn, soybeans, menhaden), to feed level, farm level, and finally wholesale level. Bakucs et al. (2014), in contrast, take an explorative approach and

investigate the reasons for asymmetric price transmission in agro-food chains. For getting an extensive overview on existing contributions, we refer the interested reader to the recently published literature review of Assefa et al. (2015) which summarizes important studies on price transmission in food supply chains. With regard to manufacturing supply chains, we did not find any contribution on the transmission of financial supply risks during our literature review. Some SCRM and SRM scholars (e.g., Escaith and Gonguet 2011, Świerczek, 2013, Świerczek 2014), recently commenced investigating the transmission of financial shocks (e.g., bankruptcy of a supplier) and disruptions in manufacturing supply chain. Nevertheless, to the best of our knowledge there is no contribution that deals with the transmission of unanticipated purchase price in an industrial supply chain risk or supply risk management context.

Dependence and power in buyer-supplier relationships

The constructs of dependence and power are deeply rooted in social exchange theory (Blau 1964, Emerson 1962) and resource dependence theory (Pfeffer and Salancik 1978). According to Emerson (1962), the power of an actor A over an actor B is based upon and equal to the dependence of actor B on actor A, leading to either a balanced or an unbalanced relationship. Resource dependency theory adapts the concept of power to inter-organizational relationships. It predicts that through interdependencies, different levels of dependence and power arise among organizations (Pfeffer and Salancik 1978). In supply chain research and specifically in buyer-supplier relationships, the topics of dependence and power asymmetry have received considerable attention (e.g., Cox 2001, Cox et al. 2002, Gulati and Sych 2007). One of the first contributions attempting to unify the concepts of power and supply risk is provided by Kraljic (1983). He suggests a matrix approach to assess the strengths of the supply market and the buying company along 20 criteria drawing on factors, such as market size versus capacity, market growth versus capacity, competitive structure, and entry barriers. Another quite well-known framework, the so-called power matrix, is put forward by Cox (2001). Therein, buyer-supplier relationships can be assigned to four basic power positions (independence, interdependence, supplier dominance, and buyer dominance) depending on attributes of supplier power relative to buyer power and buyer power relative to supplier power. Several more scholars directly and indirectly examine the factors underlying power in the supply chain. Kähkönen and Virolainen (2011), for instance, investigate power relations between buyers and suppliers in value networks. They provide a theoretical framework for the analysis of the sources of structural power on the network, relationship, and organizational level. Terpend et al. (2011) study how buyers align their relationships with suppliers to the contextual characteristics of the purchase. They name a set of variables influencing buyer-supplier relations based on the literature (e.g., French and Raven 1959, Gaski 1984, Porter 1979), among them also some possible sources of power (e.g., entry barriers, substitutability). In a recent study, Pazirandeh and Norrman (2014) examine the relationship between purchasing strategies practiced by less-powerful buyers and their purchasing power. Besides their case study data, they provide a broad literature overview on possible sources for purchasing power (e.g., availability of product, availability of demand substitutes). Summarizing, power and dependence in buyer-supplier relationships and supply chains is an intensively studied field providing valuable insights for this research. Nevertheless, to the best of our knowledge, there is no contribution that specifically explores the main factors that enable companies to gain this power and to finally transfer unanticipated portions of consumption factors' purchase prices to suppliers and customers.

Methodology

To answer our research question, we followed a two-step approach consisting of (a) an exploratory interview series, and (b) a follow-up cross-industry survey. Target of the exploratory interview series was to identify possible enablers that allow manufacturing companies to pass on increased consumption factor prices to suppliers and customers. To gain a rather broad overview, we decided to include multiple companies in the interview series. By stepwise theoretical sampling (Coyne 1997), we identified appropriate companies serving the purpose of this study. Based on secondary data from a previous study on purchase price risks, we selected manufacturing companies that have been subject to extreme market price or exchange rate fluctuations on the supply side during the last few years, varied in size, supply chain position, and price transmission ability. We contacted the persons responsible for the management of financial purchase price risks, namely strategic purchasing managers, supply chain managers, financial managers, and general managers, and asked for their willingness to participate in the interview series. 12 companies agreed to take part in our study. With each company we conducted semi-structured interviews lasting 45 minutes on average. The industry experts were questioned on their company's situation regarding market and exchange rate risks, their ability for transmission of increased purchase prices, and the company's existing and non-existing enablers to do so. The interviews were recorded, evaluated, coded, and validated by two researchers according to a four-step approach following qualitative data analysis of Miles and Huberman (1992). To further validate the results of this first research phase, we used an extensive cross-industry survey on specific supply risks, including market price and exchange rate risks and integrated questions on purchase price transmission in the supply chain. The study took place between May 2014 and August 2014. To identify suitable companies for the comprehensive study, we contacted 2000 European manufacturing companies in Europe and questioned them on their economic strain by supply risks. Altogether, we identified 163 companies that fulfilled the study requirements and that were interested to take part in the survey. 109 questionnaires were returned completed. After data cleaning, 78 companies remained that were affected by financial purchasing risks (market price or exchange rate) and answered our questions of purchase price transmission in the supply chain. We asked the participants of the study to quantify the average percentage of purchase price increase they can transfer to their suppliers and customers as well as their company's excess. In addition, we included the enablers as check-box and asked the participant to specify the enablers to do so on supplier side and customer side. We extracted the groups of companies whose percentile rank exceeded the 90% mark regarding price transmission to suppliers or customers (i.e., the companies were better than 90% of the sample) and compared the answers of these particularly successful companies (Camp 1989, Boutellier and Kobler 1996) to the overall sample.

Enablers to transfer unanticipated purchase prices

Results of the interview series

The purchase price risk profiles of the interviewed companies are described in Table 1. As we can see each of the companies is characterized by a high purchase price risk due to at least one critical purchase price risk component.

Table 1: Characterization of companies interviewed

#	Industry	Supply chain position	Company size	Risk for unanticipated purchase prices due to...	
				...market prices	...exchange rates
1	Automobiles	OEM	Large	Medium	High
2	Medical Devices	OEM	Medium	Low	High
3	Electronics	Tier 2	Large	High	High
4	Plastics Products	Tier 1	Small	High	Low
5	Plastics Products	OEM	Medium	High	High
6	Railway Systems	OEM	Large	Low	High
7	Food & Beverages	OEM	Small	High	Low
8	Plastics Products	Tier 1	Large	High	Medium
9	Plastics Products	Tier 1	Medium	High	Medium
10	Chemicals	Tier 1	Small	High	Medium
11	Machinery	OEM	Large	Low	High
12	Machinery	OEM	Large	Medium	High

During the interviews, we asked each of the companies on their ability to transfer unanticipated purchase prices in the supply chain and the factors that enable them to do so. The results for each company are depicted in Table 2. Company 1 and company 2 show a high potential for transferring unexpected price increases to the supplier side and a medium potential regarding the customer side. They named (1) *the products' technical specifications and the resulting strong integration of suppliers*, (2) *the products' technical specifications leading to a unique product offering on the sales market*, (3) *their status as A-customer* regarding volumes and revenues, and (4) *their good relationship with suppliers* as factors enabling this practice. Company 1, moreover, regards its (5) *strong brand and company reputation* as well as (6) *the product's aesthetic features* as relevant factors, particularly for passing price increases on to customers. Nevertheless, the two companies state that they see the risk mitigation strategy "passing on of unexpected price increases" critical on both sides since they operate on the upper product price level and are strongly integrated with their suppliers. Company 2 even tries to protect its suppliers and avoid hidden excess charges by suppliers through paying the supplier in the preferred currency and hedging itself the upcoming exchange rate risks. The companies 3, 4 and 5 indicated a high ability to pass on increased prices to the customer side. The supplier side, in contrast, provides hardly room for price transmission. Again, the products' technical specifications were named as enabling factor. Complementing this, (7) *the general industry practice on the sales market*, (8) *the ability of customers to pass on price risks in the downstream supply chain by themselves*, (9) *the status as A-supplier*, and (10) *the status as C-supplier* were brought up by the interviewees. Regarding being an A-supplier, company 4 has a very specific situation. Despite the fact that it is a rather small company, it can maintain a strong power position. One reason certainly is that the economic delivery radius of the company's product is only about 500 km. The customers of company 4 predominantly operate in the construction industry and thus are bounded to a fixed location. Consequently, they are dependent on a geographical market. In addition, a strong market consolidation on the company 4's sales market had taken place over the last few years. Customers therefore fear further market consolidation

leading to the A-supplier status of company 4, not in terms of volume but in terms of strategic criticality. For company 5, we can observe a similar picture. Due to a limited number of comparable suppliers, there is a lack of offerings on the market, increasing the power of company 5 and making it possible to transfer unexpected price increases to the customer.

Table 2: Overview on companies' price transmission ability and corresponding enablers

#	Ability to transfer unanticipated purchase prices to...		Company's enablers for transmission of unexpected purchase prices
	... suppliers	...customers	
1	High	Medium	▪ Technical specification of products (supplier integration) ▪ Technical specification of products (unique offering) ▪ Design (aesthetic features) of products ▪ Company reputation/brand ▪ Status as an A-customer (due to volume, revenue) ▪ Good relationship with suppliers
2	High	Medium	▪ Technical specification of products (supplier integration) ▪ Technical specification of products (unique offering) ▪ Status as an A-customer (due to volume, revenue) ▪ Good relationship with suppliers
3	Low	High	▪ Technical specification of products (unique offering) ▪ Status as C-Supplier (due to share on purchasing volume) ▪ Ability of customers to pass on price risks in the downstream supply chain by themselves
4	Low	High	▪ Technical specification of products (unique offering) ▪ General industry practice on sales market ▪ Status as A-supplier (due to criticality) ▪ Ability of customers to pass on price risks in the downstream supply chain by themselves
5	Low	High	▪ Technical specification of products (unique offering) ▪ Status as an A-supplier (due to criticality) ▪ Negotiation skills of purchasing staff
6	Medium	Medium	▪ General industry practice on sales market ▪ Status as an A-customer (due to volume, revenue) ▪ Negotiation skills of purchasing staff
7	Medium	Medium	▪ General industry practice on sales market ▪ Good relationship with suppliers
8	Low	Medium	▪ Negotiation skills of sales staff
9	Low	Medium	▪ Negotiation skills of sales staff
10	Low	Medium	▪ Ability of customers to pass on price risks in the downstream supply chain by themselves ▪ Negotiation skills of sales staff
11	Medium	Low	▪ Good relationship with suppliers ▪ Negotiation skills of purchasing staff
12	Medium	Low	▪ Good relationship with suppliers ▪ Negotiation skills of purchasing staff ▪ Status as A-customer (due to volume, revenue)

Company 3, in contrast, features the status as C-supplier as enabling factor. The interviewee reported that the company's products are rather cheap; generally having a small share on the customer's overall purchasing volume. The companies 6 and 7 show a medium ability to transfer prices to both sides of the supply chain. As additional enabler company 6 names (11) *the good negotiation skill of its purchasing staff*. The companies 8 and 9 predominantly rely on (12) *the good negotiation skill of their sales staff*. Due to a strong market consolidation on the supply market and a strong vertical integration of the upstream supply chain, a price transfer to the supplier is hardly possible. Nevertheless, in both companies, the purchasing team supports sales by providing latest information on price developments to enable good arguments to convince the customer to participate in the increased costs. The situation of company 10 is very similar to that of the companies 8 and 9. However, the customers' ability to generally pass on price increases in the downstream supply chain by themselves makes it easier for company 10 to use price transmission as risk mitigation strategy. For company 11 and 12, the supplier side represents the transmission channel, supported by again by the good relationship with suppliers, the negotiation skills of purchasing employees, and the status as A-customer.

Besides the enablers directly observed in the company, we asked the interviewees on potential enablers that might increase their ability to pass on unexpected purchase price increases and complete our list. As further possible factor were named (13) *bad negotiation skills of suppliers* or (14) *customers*, and (15) *a rather good and trustful relationship with customers* that probably fosters bidirectional transmission of increased and decreased prices. For reasons of completeness, we moreover mirrored buyer or supplier related factors and included the potential enablers (16) *the general industry practice on the buying market*, (17) *the status as a C-customer*, (18) *the ability of suppliers to pass on price risks in the upstream chain by themselves*, (19) *the product's aesthetic features*, and (20) *the reputation/brand of the company influencing suppliers' behavior* in our list for the subsequent study.

Results of the quantitative study

Via a follow-up survey, we strived to further validate our findings. As already stated, we asked the companies to quantify the average percentage of increased purchase prices they can transfer to suppliers and customers as well as their excess. The average company of our sample is able to pass on 27% of increased purchase prices to suppliers and 32% to customers, whereas 41% have to be absorbed by the company itself. Particularly successful companies regarding the price transmission to suppliers ($n_s=5$) are able to pass on 72% to the supplier side, whereas successful companies regarding the price transmission to customers ($n_c=6$) can pass on 80% to the customer side. In addition, we questioned the companies regarding the enablers for price transmission and compared the answers of the identified successful companies (displayed in yellow; cf. Figure 1) with the overall sample ($n=78$; displayed in grey). As we can see, all of the enablers identified during our interview series and added by our mirroring approach were mentioned at least once. Thus, their existence is confirmed by industry practice. One additional enabler was mentioned by some of the respondents regarding the category "others", namely "making the situation transparent and explaining it to customers or suppliers". This item also repeatedly came up during the interviews. However, we did not mention it as distinct enabler category as it is always necessary to have a logical reasoning in the back to convince supply chain partners to agree on price transmission. Thus, we see this issue as a basic necessity linked to several enablers mentioned, such as the negotiation skills of sales or purchasing staff and the good relationship

with customers or suppliers. In addition, the clear ranking indicates that some enablers seem to be more present in industry practice than others. Negotiation skills and a good buyer-supplier relationship, for instance, seem to be helpful on both sides. Regarding the supplier side, being an A-customer (induced e.g., by volume, revenue) appears to be a very frequent enabler.

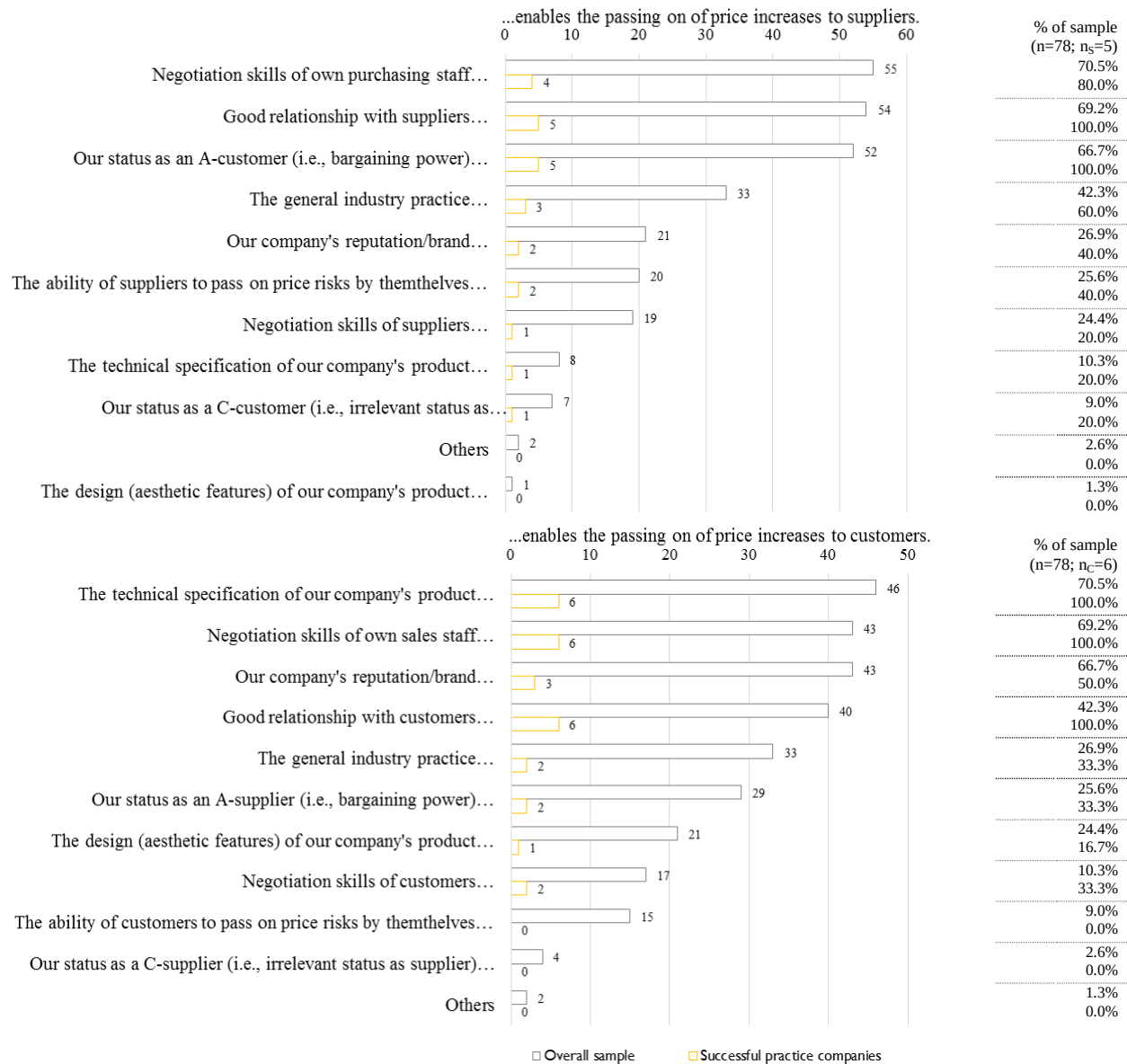


Figure 1: Ranking of enablers according to the number of mentions

On the customer side, in contrast, features of products and the company come more into play. Comparing the findings of the successful companies with the overall sample, we find that successful companies generally are related to the most common enablers. Successful firms regarding price transmission to the supplier side indicated 4.4 enablers on average (average: 3.2 enablers), whereas 3.8 enablers (average: 4.4 enablers) are named by successful firms regarding price transmission to the customer side. Noteworthy is also that all of the selected successful companies indicate the good relationship to customers or suppliers as enabler for price transfer.

Conclusion

Target of this paper was to identify and validate the main enablers that empower manufacturing companies to transfer unexpected purchase price increases of consumption factors to both customers and suppliers. By applying a mixed methods approach consisting of a qualitative interview series and a quantitative follow-up study, we found and validated 20 enablers (10 on supplier side, 10 on customer side) empowering manufacturing companies to pass on unexpected purchase price increases to the supply chain. These enablers can be either fostered by manufacturing companies to improve their price transfer ability and thus decrease the impact of purchase price related market price and exchange rate risks on the company, or used by risk managers to reason why price transmission does not work in specific contexts and alternative price risk mitigation strategies have to be fostered. In addition, the enabler set represents a useful theoretical contribution to scholars further examining the empowerment of companies in the context of price transmission. Moreover, we explored the existence of enabler patterns that are related companies more and less successful regarding price transmission. During our quantitative study, we did not yet find any striking differences between these groups. Nevertheless, our interview results give reason for the assumption that companies with higher price transmission ability rely more on enablers that are product and the company status driven than to enablers that are, for instance, related to negotiation skills. Future research will have to clarify, if there are enablers leading to a more or less powerful status regarding the transmission of unexpected parts of purchase prices. Particularly, studies that include the construct of countervailing power in the dyadic relationship (cf. Gaski 1984) may give more detailed insights on this issue.

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