

Management of Exchange Rate Risk in SMEs: Reflections on Exchange Rate Pass-through and Hedging of Currency Risk

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Abstract

Exchange rate fluctuations represent a challenge for the internationalization of all firms, both big and small. This paper reflects on two aspects of the exchange rate challenge - (i) the exchange rate pass-through and (ii) hedging of exchange rate risk and how SMEs manage these two aspects of exchange rate risk. The exchange rate challenges that SMEs face might differ from the risks larger firms are exposed to, and their management of the risks might vary. In family-owned SMEs, longer planning horizons than listed firms might imply a weaker exchange rate pass-through, while smaller financial buffers might pull pass-through rules in the opposite direction for the same SMEs. When considering hedging, the paper argues for both operational hedging and external hedging to represent a management challenge for SMEs, pushing the exchange rate risk towards the forefront of the factors hampering internationalization among SMEs.

Introduction

The paper is concerned with how small- and medium sized enterprises (SMEs) manage the exchange rate challenges they face when entering foreign markets. Being a relative price, exchange rates move somewhat unpredictably and, at least in the short run, suffer exchange rate theories from weak explanatory power (Amiti, Itskhoki, & Konings, 2014).

For a firm operating in a foreign market, where income and costs are in different currencies, the exchange rate is a challenge, and how it is managed crucial. Hence the paper reflects on SMEs' management of exchange rate risk. Using the textbook method as a benchmark, the paper demonstrates strategies to manage exchange rate risk among SMEs. As textbooks often analyze large(er) firms, this approach implicitly compares SMEs' behavior to big(ger) exporting firms. The paper reflects both on whether the literature distinguishes the exchange rate challenge concerning an exporter's size and whether these exporters manage their exchange rate challenges differently.

We restrict ourselves to two particular – but positively related – themes. The first is the exchange rate pass-through, which analyses how exporting firms incorporate exchange rates into pricing rules. The second is foreign exchange risk (FX) hedging and the extent to which SMEs hedge foreign currency risk. When analyzing hedging, we restrict ourselves to transaction risk, leaving aside translation and economic risk (Hagelin, 2003) for exchange rate risk), as transaction risk is most relevant for SMEs.

In terms of pricing, we consider both cost-based and market-based pricing strategies. The paper reflects on how SMEs' characteristics, such as ownership structure, product characteristics, funding, and location (relative to funding sources) impact foreign market-based pricing rules among SMEs (Achterberg, Omar, Ambituuni, & Roll, 2018) for an introduction to foreign trade and foreign market pricing). We consider how competition structures and the distinction between mass- and niche products impact exchange rate pass-through. Finally, when analyzing hedging strategies, we argue that hedging costs are a part of cost-based pricing rules in foreign markets, which is especially important when managing SME's international market operations.

The rest of the paper is structured as follows. The second section gives a brief introduction to SMEs' internationalization process, focusing mainly on the role of exchange rates in the presence of foreign market entry costs. The third section considers SME's foreign market pricing rules and different exchange rate pass-through components relevant to SMEs' exchange rate risk. The fourth section considers hedging strategies and how SMEs manage their exchange rate risk. Section 5 provides discussion, while the last part, section 6, concludes the paper.

Literature Review

Internationalization of SMEs

The internationalization process of SMEs is the focus of several papers (Bell, Crick, & Young, 2004; Bose, 2016; Clercq, Sapienza, & Crijns, 2005; Fernández & Nieto, 2005; Kunday & Şengüler, 2015; Ruzzier, Hisrich Robert, & Antoncic, 2006).

Different structures characterize different markets, and when entering new markets, it is necessary to become acquainted with both a new market structure and new competitors. This, of course, is true for any new market, domestic or foreign.¹ When entering a foreign market, the exchange rate comes into play, a feature unique to international markets. As exchange rate movements are difficult to predict, aspects related to the exchange rate

¹ See Bowen et al. (1998) for a general approach to trade theory and applied analysis of foreign market analysis.

represent a challenge to SMEs' internationalization. Still, for a firm that sells products abroad and receives income in a currency different from its production cost, the exchange rate and rate at which income may be converted into domestic currency are crucial for foreign market profitability.

The exchange rate is relevant to all firms operating in international markets. If one considers the linear internationalization structure of Meissner and Gerber (1980), where import and export are the first steps on the internationalization ladder (Figure 1), the challenges related to exchange rate movements might differ across firms at different stages of internationalization.

Analyzing the risk associated with exchange rates, Hagelin (2003) separates transaction, translation, and economic risk. Figure (1) sees how transaction risk is the dominant type of exchange risk for SMEs at the first stages of the internationalization ladder. As firms enter joint ventures, start foreign manufacturing or acquire foreign currency assets, and internationalization matures, translation and economic risk become increasingly relevant.²

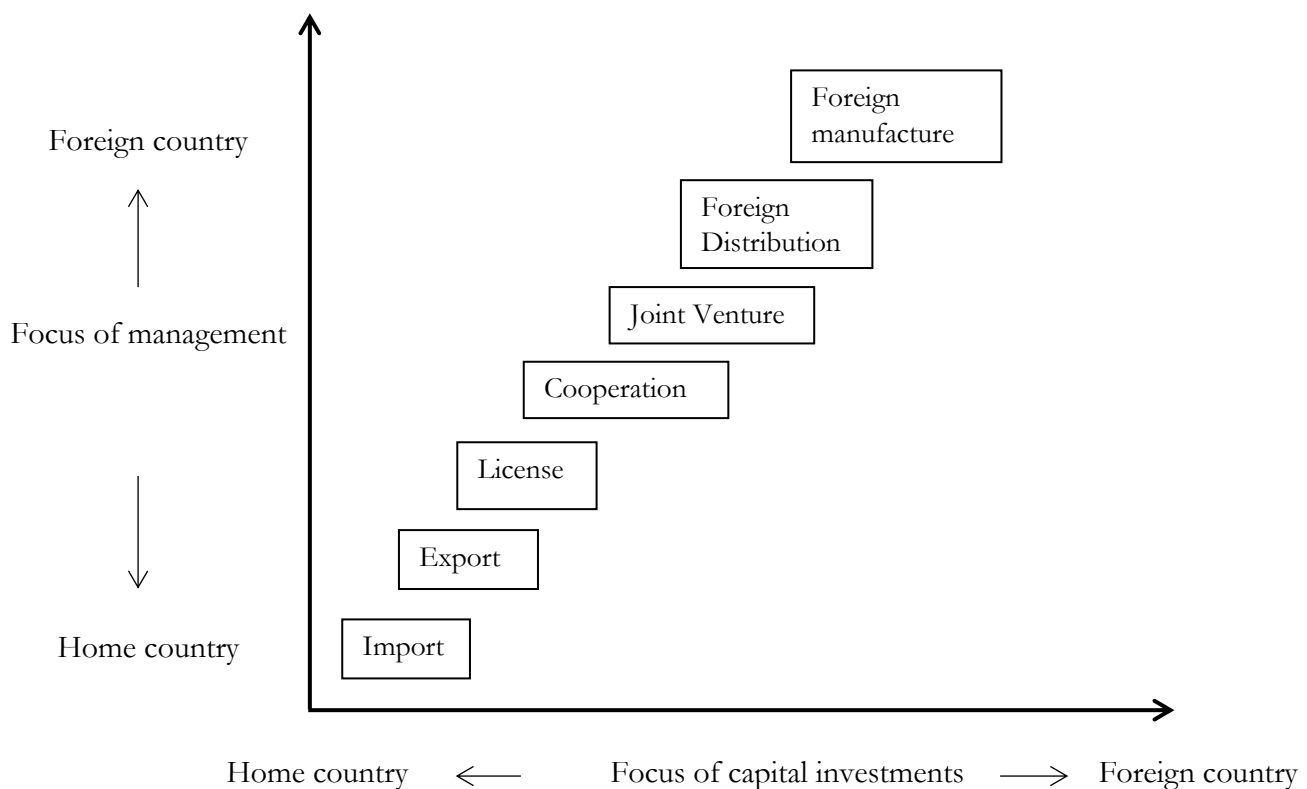


Figure 1 - The internationalization process

Source: Meissner and Gerber (1980,) p. 224.

A linear structure might falsely give the impression that internationalization is a straightforward process. Increasing, decreasing, and re-increasing commitment to foreign markets by SMEs is discussed by Dominguez

² While separating transaction and translation risk is straightforward in theory, the balance sheet effect that translation risk represents is a potential source for pass-through variations. Borgersen (2016) analyses the exchange rate response of credit constrained exporters and shows how export market behavior might be affected by balance sheet effects where, for SMEs at the beginning of the internationalization process, transaction risk might be non-negligible.

and Mayrhofer (2017) and Langseth, O'Dwyer, & Arpa (2016), while the distinction between gradualists and born global is the focus of, e.g., Bell, McNaughton, Young, & Crik (2003) and Kalinic & Forza (2012). Today there seems to be an acceptance of modifications to the gradualist so-called Uppsala model (U-model) of SME internationalization (Johanson & Vahlne, 1990). The modification path began during the mid-1990s as some papers showed potential for more rapid internationalization among SMEs than predicted by the U-model (Johanson & Vahlne, 2009; Oviatt & McDougall, 1994). A more rapid internationalisation process is related to SMEs' knowledge and international networking activities (Oviatt & McDougall, 2005).

While important, SMEs' exchange rate challenge is rarely at the core of discussions regarding SMEs' internationalization. The literature elaborates on a minimum of 11 concrete challenges to internationalization.³ Several of these challenges are directly related to the exchange rate. Some are obvious, while others are more subtle. While the relation between pricing and exchange rates falls within the former category, the foreign market entry link is more subtle.⁴

The role of exchange rate shocks concerning firms' ability to enter and operate in foreign markets is a standing issue in international trade theory. The costs associated with entering a foreign market make exporting differ between a potential new entrant and an established exporter. The non-linear export supply curve of Baldwin and Krugman (1989), pictured in Figure 2, illustrates an entry problem relevant to SMEs internationalization.

Market entry costs produce a non-linear export supply curve and a “hysteresis band” between an entry exchange rate trigger and an exchange rate exit trigger. A temporary exchange rate shock shows the relevance of exchange rates for entry – and operating – decisions. Suppose we assume an exchange rate process ($q_0 \rightarrow q_1$) and back ($q_1 \rightarrow q_0$), we find non-trivial effects on the internationalization of an SME, which we assume initially does not export. As the exchange rate moves above the entry trigger, ($q_1 > \alpha_j$) it becomes profitable for an SME to incur the entry cost and begin exporting. When the exchange rate falls back to the initial level (q_0), the SME does not cease exporting, as it has incurred the entry costs. A corrective appreciation is necessary to make SMEs cease exporting because the exchange rate that triggers exit is lower ($q_2 < \beta_j$).

³ A blog posted by R. Katie argues the eleven biggest challenges to internationalization as (1) international company structures, (2) foreign law and regulation, (3) international accounting (4) global pricing strategies and cost calculations, (5) universal payment methods, (6) currency, (7) choosing the right global shipment methods (8) communication difficulties and cultural differences, (9) political risks, (10) supply chain complexity and the risk of labour exploitations and (11) worldwide environmental issues. (Katie, 2017) <http://www.hult.edu/blog/international-business-challenges/>.

⁴ For SMEs, accounting rules that come into play with internationalization, and a foreign currency income cash flow, are relevant for the ability to operate in international markets. How to deal with exchange rates is relevant in terms of both international accounting rules and tax compliance regulations. To avoid unnecessary taxes and inefficient adaption to foreign markets, one needs to understand accounting rules and tax treaties between countries prior to moving abroad. Scarce management capacity among SMEs might in this regard represent a substantial hinderance to internationalisation. Companies registered in the European Union may, for instance, take advantage of “the Common Consolidated Corporate Tax Base (CCCTB)” where companies operating in the EU can limit tax liability to one corporate center, an opportunity not necessarily as accessible to SMEs as larger firms. (https://ec.europa.eu/taxation_customs/business/company-tax/common-consolidated-corporate-tax-base-ccctb_en extracted 05.12.2018).

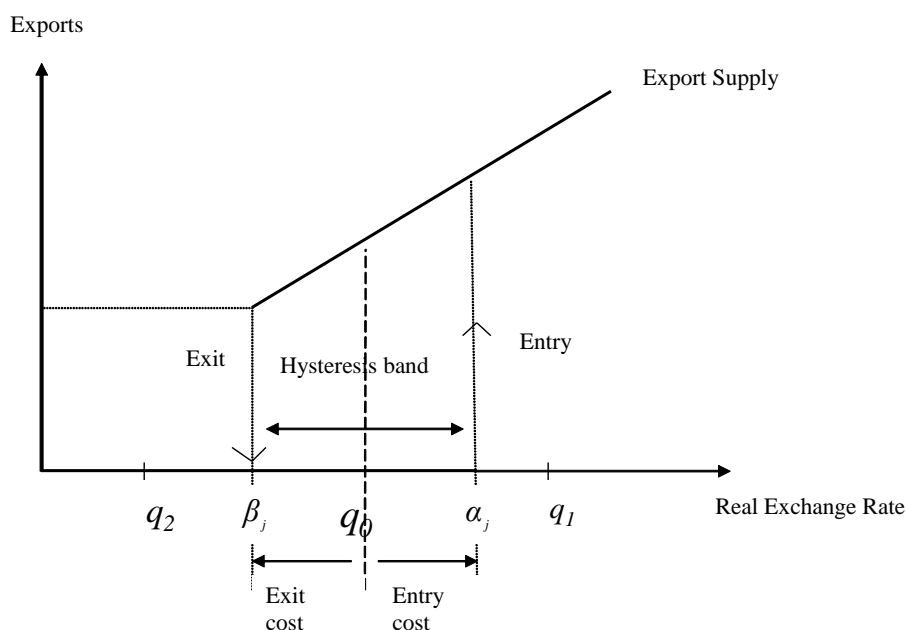


Figure 2 - The non-linear export supply curve

Source: Baldwin and Krugman (1989), p. 641.

The export hysteresis framework, where effects of past exchange rate values remain in current export volumes (Baldwin & Krugman, 1989), claims that firms are faced with sunk market entry costs, including costs of packaging, upgrading of product quality, establishing export market channels and accumulating information on-demand sources (Gimede, 2004, p.380).

Trade costs differ between both industries and countries, but in one way or another, smaller firms bear higher costs for (market) information (Gimede, 2004, p. 387). This makes the non-linear export supply curve relevant to SMEs' export behavior, a feature that is not given sufficient attention in the literature.

Higher entry cost makes internationalization problematic for SMEs, and the higher the entry costs, the wider is the hysteresis band (Borgersen, 2006). The hysteresis band complicates the entry into foreign markets and makes it harder to leave once having entered. The entry cost also distinguished profitability between potential SME exporters and already established SME exporters (Borgersen, 2005). The hysteresis band is also related to the two aspects discussed below. The degree of exchange rate pass-through and hedging of exchange rate risk might impact the fluctuations in income, thus the probability of remaining as an exporter once having entered.

SMEs Pricing of Exports and Exchange Rate Pass-Through

Determining the price of products and services can be challenging when firms operate overseas. The strategy for determining price should be taken into account when formulating a strategy for moving overseas (Ensari & Karabay, 2014). The literature on exchange rate pass-through (ERPT) investigates the relationship between exchange rates and industry characteristics such as the nature of competition and market structure (P. K. Goldberg & Knetter, 1997; Menon, 1995).

In perfectly integrated markets, the law of one price (LOP) is argued to hold. Therefore, in the absolute type of LOP, identical products should have the same price in perfectly integrated markets (P. K. Goldberg & Knetter,

1997). The relative version of LOP, where transportation costs are included, allows for a constant price wedge between identical products. ERPT is complete in the absolute LOP, while less than thorough in the relative version of LOP, but consistent in both frameworks. As SMEs often produce differentiated goods and are engaged in niche-markets (Moen, 2000)⁵, LOP arguments might be less relevant for SMEs ERPT.⁶

A price response to changes in nominal exchange rates that might be more relevant for SMEs may be found in flexible or sticky price imperfect competition models.⁷ Dornbusch (1987) identifies four variables potentially affecting the degree of pass-through to destination currency import prices, including (i) the level of market segmentation, (ii) the level of product differentiation, (iii) the functional form of the demand curve, and (iv) the market structure and degree of strategic interaction among suppliers. This approach complicates ERPT compared to LOP-strategies and makes it context-specific.

According to Dixit and Stiglitz's (1977) monopolistic competition model, the optimal price is a constant mark-up over marginal cost. The mark-up is inversely related to the elasticity of demand. Dixit and Stiglitz argue for an import price response proportional to the change in the nominal exchange rate and that ERPT is complete when the elasticity of demand is constant. On the other hand, Krugman (1986) finds pass-through to be incomplete in monopolistic competition and introduced the 'pricing-to-market' concept.

Starting from a Cournot model with foreign and domestic firms, Dornbusch (1987) explains the relationship between ERPT and market structure. Dornbusch observes incomplete ERPT and found the pass-through elasticity ε to be positively related to the number of foreign firms to total firms in a market n^*/N , in addition to market concentration $\frac{ew^*}{P}$. (The nominal exchange rate is expressed by e , the domestic currency price level by P while w^* is foreign wage cost).

$$\varepsilon = \frac{n^* ew^*}{N P}$$

Krugman (1986) also points out that a dynamic model of imperfect competition is necessary to explain pricing-to-market and ERPT. Studying a two-period duopoly, Froot, and Klemperer (1989), for instance, argue that a firm's market share in the first period matters for the demand it faces in the second period. According to the model, the expected future exchange rate influences the market share in the second period and the optimal first-period price. Froot and Klemperer also relate ERPT to whether changes in exchange rates are temporary or permanent.

Kasa (1992) argues, as Froot and Klemperer (1989), that a factor critical for ERPT is the relative importance of the transitory component of exchange rate fluctuations. A low pass-through may be the result of exchange rate changes perceived to be transitory. When distinguishing between temporary and permanent exchange rate shocks, firms' planning horizon is brought to the table. Both agency theory and transaction cost theory is used

⁵ Moen (2000) argues SMEs' export strategy targets niche markets to overcome their size disadvantage. See also OECD (2004) or the interesting Trade forum discussion <http://www.tradeforum.org/article/a-strategic-approach-to-sme-export-growth/>

⁶ See Borgersen (2011) for a discussion related to the internationalization and exchange rate challenges of SMEs in developing economies.

⁷ Sticky prices are related to menu-costs, costs that might be higher in international compared to domestic markets. When price strategies are time-dependant, the real effects of exchange rate shocks might be substantial and by far exceed the consequences of the same strategy in domestic markets. Results from state-dependant rules might be more equal to domestic markets. See e.g. Mankiw (1985) for a classic approach to menu costs.

to highlight the role of ownership structure (McConaughy, Walker, Henderson, & Mishra, 1998). As many SMEs are family-owned, the planning horizon might differ from that of large listed firms, requiring shorter horizons to satisfy investor requirements.⁸

The role of the planning horizon in ERPT might be seen from Borgersen (Borgersen, 2007). Highlighting the exporters' planning horizon, the paper derives an intertemporal pricing rule for exports, which might illustrate the distinction between ERPT among SMEs and more significant listed exporters.⁹ The export price in domestic currency P_t^* is linked to the permanent value of the exchange rate \tilde{e} , but where one also allows for short-run exchange rate deviations $(\tilde{e}_t - e_t)$.¹⁰

$$(2) \quad P_t^* = \theta e_t + \theta(\tilde{e}_t - e_t)$$

Expression (1) gives an exporter the pricing rule with a long horizon, which we here assume to be an SME. We compare this to a short-run pricing rule $P_t^* = \theta e_t$ (the first term of expression 2), which represents a static (period-by-period) mark-up rule that governs pricing among exporters with shorter horizons, in this case, more significant exporters.

In the case of a temporary shock to the exchange rate, α is the permanent value of the exchange rate affected $\frac{\delta \tilde{e}_t}{\delta \alpha}$, but the effect on the permanent value that falls short of that on the current value of the exchange rate is $\frac{\delta e_t}{\delta \alpha} (\frac{\delta \tilde{e}_t}{\delta \alpha} < \frac{\delta e_t}{\delta \alpha})$. It follows thus directly from the two pricing rules, as the effect on the static mark-up rule $\frac{\delta P_t^*}{\delta e_t} = \theta$ exceeds the effect on the intertemporal pricing rule $\frac{\delta P_t^*}{\delta e_t} = \theta \frac{\delta \tilde{e}_t}{\delta e_t}$, that a temporary exchange rate shock affects SMEs pricing less than the pricing of bigger exporters with a short-run pricing rule $\frac{\delta P_t^*}{\delta e_t} > \frac{\delta P_t^*}{\delta e_t}$. Differences in planning horizons, for instance, differences in ownership structure, might produce different ERPT and different exposure to the exchange rate risk of exporters of various sizes.

Even so, the 'hysteresis models' of and Baldwin and Krugman (1989) discussed earlier emphasize another dynamic supply-side effect on ERPT in industries with SMEs. Large exchange rate shocks might, in contrast to smaller shocks, induce entry (or exit) and alter market structures and change competition and impact ERPT. From expression (1), we see how the entry of foreign firms n^* Changes the pass-through elasticity in a market. If market entry costs are higher in niche-markets, the hysteresis band pictured in Figure (2) is broader, and more massive shocks are necessary for stimulating entry (or exit). This makes ERPT smaller in niche markets than markets with mass-production dominated by large exporters for most sized exchange rate shocks.

SMEs Hedging of Exchange Rate Risk

As SMEs enter foreign markets, new opportunities arise. Internationalization, however, also exposes SMEs to exchange rate risk (Bartram, 2008; Bartram, Brown, & Minton, 2010) for the basics of exchange rate risk).¹¹ Over the last decades, large and persistent fluctuations in exchange rates have been a significant risk for companies worldwide, particularly for firms with foreign currency-based activities such as imports and exports

⁸ See, for instance, Lee (2004) for family owned SMEs. Lee (2004) argues for a positive influence of family ownership on cost efficiency and return on investments.

⁹ See Borgersen (2008), p. 13.

¹⁰ The exchange rate pass-through parameter θ might encompass both LOP-frameworks ($\theta = 1$ (*absolute LOP*) and $\theta < 1$ (*relative LOP*)) as well as pricing to market ($\theta < 1$) reasoning.

¹¹ See e.g. Garner and Shapiro (1984) for a practical method of assessing foreign exchange rate risk.

(Álvarez-Díez, Alfaro-Cid, & Fernández-Blanco, 2016). Increased exchange rate risk might hamper SMEs' internationalization abilities. Foreign exchange risk is associated with unexpected changes in exchange rates (Bartram et al., 2010). Hedging against such risk implies seeking insurance against these risks either through internal or external hedging. As FX hedging might take different forms and vary across both intensity and structure, SMEs' management of exchange rate risk contains several essential aspects.

The pricing rule above allows for an illustration of how exchange rate fluctuations impact export market profitability and how such changes may hamper internationalization. Assuming an exporter enters a foreign market (let us say the US) where the market price per unit is 10 US\$, and the exchange rate (the domestic price of US\$) equals 7, the domestic currency per unit income from exports is equal to 70 in domestic currency. An appreciation of the domestic currency from 7 to 5 reduces domestic currency income per unit of exports to 50. Hence, even if the US's market price is unaffected, the appreciation reduces domestic currency income per unit of exports by 28 percent. If such events occur frequently, foreign market operations become troublesome. In contrast, efforts to hedge against such shocks' consequences might help – or be a prerequisite – for foreign market operations.

Dominguez and Tesar (2006) describe a significant level of foreign exchange exposure among small exporters. Figure 1 may argue that transaction risk is the most prominent type of exchange rate risk for SMEs operating in the first internationalization stages. However, focusing on exporters' location relative to funding sources and second-hand markets for capital, Borgersen (Borgersen, 2016) also bridges the gap concerning translation risk for exporting SMEs.

Yeo and Lai (2004) support Dominguez and Tesar (K. M. Dominguez & Tesar, 2006) and argue that SMEs suffer a greater exchange rate risk than more prominent exporters. Williamson, Griffin and Doidge (2002) discuss the opposite, as (i) SMEs tend to operate in markets with inelastic demand while large firms tend to operate in more price-sensitive markets, and (ii) stock prices of SMEs (when listed) are less affected than those of big firms due to information asymmetries, where fewer investors understand the exchange rate exposure of SMEs.

There are several strategies SMEs may use to manage their risk exposure. Both the use of derivatives such as forward contracts, futures contracts, swaps, and natural hedges (Ehrlich & Anandarajan, 2008; S. R. Goldberg & Drogot, 2008), or operational strategies are available.

Hedging does not cost-free, and the hedging decision should be rooted in a cost-benefit framework. In the context of perfect capital markets, hedging does not add value, and the arguments for hedging must be found in various types of capital market imperfections. The cost of financial distress (Hagelin, 2003), under investments (Muller & Verschoor, 2006), and tax liabilities (Smith & Stulz, 1985) are conventional arguments in favor of hedging.¹² Froot, Scharfstein, and Stein (1993) extended Smith and Stuz (1985) to a framework relevant for SMEs, where external funding is more costly than internal funding when arguing the gains of hedging.

Pennings and Garcia (2004) argue that it is not common among SMEs to use derivatives to hedge risk. SMEs' lack of interest in FX hedging might at first glance be surprising, given that SMEs are often considered high-risk firms (Marshall, Kemmitt, & Pinto, 2013) and that many of the characteristics of SMEs, such as the high risk of financial distress and underinvestment, are closely tied to the advantages of hedging. In an internationalisation context, the underinvestment argument is, for instance, highly under-communicated. The market entry cost argument discussed earlier decides to enter foreign markets an investment decision. The lack

¹² There is a contribution to the discussion of hedging and tax incentives by Graham and Rodgers (2002).

of internationalisation among SMEs is thus an underinvestment issue, where hedging might help improve efficiency and bring value-added.

Döhring (2008) classifies hedging designs as given by Table 1. While financial hedges comprise derivatives and foreign currency borrowing, operational hedges refer to the geographical diversification of production, sourcing, and sales.¹³ Foreign currency borrowing is part of what is referred to as a natural hedge, not an operational hedge.¹⁴

Table 1 - Classification of hedging instruments

Classification in hedging literature	Financial hedges		Operational hedges
Classification in financial statements	Derivative hedges	Natural hedges	
Examples	Forwards (futures), options, swaps	Foreign-currency debt	Diversification across currency zones, operational matching of revenues and expenditures

Source: Döhring (2008), p. 5.

Different hedging strategies have other (dis)advantages. Several types of financial instruments might be used to hedge currency risk. Advocating which type of instruments are favorable to SMEs, once having decided to hedge exchange rate risk, is complex and involves several features. When comparing, for instance, forwards and futures, the former might be tailor-made while the latter is standardized. The former type of instrument may, at the same time, require payments of higher premiums and lack tailor-made construction (Ehrlich & Anandarajan, 2008). A tailor-made contract is more expensive than a standard contract and less liquid, which may constrain SMEs' ability to hedge exchange rate risk and ultimately hamper their successful entrance - and operation - in foreign markets. In the presence of relationship lending, this pricing aspect might be even more vital if derivatives are relatively unfamiliar territory for the smaller banks. Irrespective of the price of hedging, in a cost-based pricing regime, the hedging cost should be incurred in export price. Goldberg and Drogdt (2008) argue for the inefficiency of forward rate strategies if payment dates differ from maturity, although as a hedging strategy, that thus might be costly.

In general, the relationship between hedging and firm size is ambiguous.¹⁵ Some tentative arguments might, however, be made, especially for financial hedges. Chan-Lau (2005) argues forwards to be less available to SMEs due to counterparty risk. Jonuska and Samenaite (2003) discuss derivatives to be too costly for many firms, especially SMEs. Graham and Rodgers (2002) also argue that hedging increases with firm size and that SMEs, due to high fixed costs, fail to set up a hedging program. Hagelin (2003) also argues that financial instruments are unaffordable for small firms and finds that firms hedge transaction risk.

Moreover, he claims firms with (i) high human capital investments and (ii) lower institutional ownership are more frequently hedging transaction exposures. However, the paper argues that the hedging intensity of firms

¹³ Allayannis, Ihrig and Weston (2001) discuss financial and operational strategies for exchange rate hedging. There are also several studies that provide empirical support for hedging (see e.g. Moosa (2004) and the references therein).

¹⁴ See Döhring (2008) for a discussion. In the following, we focus mainly on SMEs' use of financial hedges.

¹⁵ Firms may hedge for a number of reasons, although no real agreement on hedgers outperforming non-hedgers seems to exist (see e.g. Allayannis et al., (2001). Thinking in terms of what to hedge, there seems to be agreement that short-term fluctuations in exchange rates may be hedged at little difficulty, while long-term movements are more serious (Brookes et al. 2000).

increases with market-to-book ratio, the share of foreign currency revenues, and the degree of human capital. The effect of institutional ownership does not factor in the characterization of SMEs. Pennings and Garcia (2004) investigate SMEs' hedging behavior and argue that firm size, risk exposure, and financial structure matter for the use of derivatives. Besides, the decision-making unit, manager's risk attitude, risk perception, and education level play essential roles in explaining SMEs' derivative usage (Pennings & Garcia, 2004, p.972).

The general wisdom in academic circles is that large banks are uninterested in SMEs (de la Torre, Martínez Pería, & Schmukler, 2010). This argument underlies policy programs favoring special funding assistance to SMEs.¹⁶ De la Torre et al., (2010) relates the factors hampering SME financing to "opaqueness," i.e., that it is difficult to ascertain if firms can pay (have viable projects) and willingness to pay (due to moral hazard). A potential solution to this "opaqueness" is relationship lending, where banks rely on loan officers' soft information through continuous and personalized contacts with SMEs. In this case, it might be natural that larger banks are less prone to fund SMEs. If internationalization makes it necessary for SMEs to move beyond relationship lending, due to capacity or market knowledge among smaller banks, financial hedges' availability might be limited.

However, de la Torre et al. (2010) continue by arguing that banks are interested in helping supply SMEs with funding due to (i) reduced interest rate margins in standardized sectors and the fact that (ii) lending is a part of the overall package banks provide to SMEs. This package includes several different services (fee-based non-lending services). Banks are increasingly applying transaction technologies that facilitate arm-length lending, such as credit scoring and risk-rating tools, which allow for SME funding. The availability of financial hedging tools might thus improve over time.

Operational hedging is an integral part of firms hedging; one might argue that it is the cornerstone of hedging. However, operational hedging is resource-demanding and might be troublesome for SMEs where administrative resources are constrained. Gao, Sung, and Zhang (2012) argue that SMEs lack formal methods for risk management, supporting internal hedging techniques. Due to limited resources, SMEs may resort to internal hedging and be unaware of the nature of external hedging techniques (Kula, 2005). McCarthy (1999; 2003) argue that operational hedges are a very cost-intensive hedging strategy, almost unattainable for small firms. McCarthy (1999) claims operational risk to be challenging to quantify and, when exchange rates come into play, even complex for SMEs to handle. Boyabatli and Tokay (2004) claim that operational hedging creates a long-term hedge that favors internationalization but that operational hedges require higher capital investment levels than financial hedges and are therefore even less available to SMEs. Irrespective of firm size, managerial risk attitude is essential for hedging per se and the hedging strategy (Smith & Stulz, 1985).

Discussion

The degree of competition, the distinction between niche and mass production, and the extent of product differentiation might contribute to variations in ERPT across firm size due to different strategies in managing exchange rate risk. SMEs are often engaged in niche-production with the scarce competition, allowing for more substantial pass-through than markets where more prominent exporters compete over market-shares. Inelastic demand, however, pulls ERPT in the other direction. Lack of management competence and internal resource constraints might hamper SMEs' ability to apply ERPT rules and properly manage exchange rate risk in the first place.

The link between an exporter and its funding sources is relevant for how SMEs manage exchange rate risk. For SMEs, relationship banking is essential, as their relation to financial markets is weaker. The ability to borrow in

¹⁶ See CFA (2013) or OECD (2018) for the basic principles.

the same (foreign) market in which it operates produces different ERPT among more prominent exporters than SMEs, relying on domestic market funding. Naturally, the paper focuses on SMEs' transaction risk, leaving both translation and economic risk aside. Relationship lending, and the role of SME location relative to funding sources, bring both types of exchange rate risk into the picture. This is valid both when discussing pricing and in terms of SMEs' hedging of exchange rate risk and how to manage the two.

In a cost-based pricing strategy, the cost of hedging should be included in the foreign market pricing rule. The decision of whether or not to hedge FX risk can be related to a cost-benefit assessment. The benefits associated with reduced variations in foreign market income must be weighed against the cost of hedging. The cost includes both the purchasing price of hedging instruments and the internal costs of analyzing and deciding on relevant risk. In the case of operational hedging, the costs of any internal adjustment related to this operational hedge should be included. Some argue that operational hedging is unavailable to SMEs due to high internal costs. Insufficient management capacity is discussed to deter SME hedging in general, both operational and external hedging.

If entering an international market makes it necessary to move beyond relationship lending, external hedging costs might be too high for SMEs. Market availability might also play a role. While forwards seem a natural instrument for tailor-made FX-hedging and area particularly useful for marginal foreign market exposure at the beginning of the internationalization process, such instruments are more expensive than futures. The choice between such tailor-made and standard instruments for managing exchange rate risk might be crucial for SMEs' ability to operate successfully in international markets. The option might increase the cost of hedging and the export price in the case of a cost-based pricing strategy.

Conclusion

The exchange rate represents a challenge for firms entering international markets, irrespective of firm size. Of course, both the type of challenge and how to manage such challenges might vary according to firm size. This paper reflects how SMEs manage their exchange rate challenges and benchmarks the reflections on SMEs' management of exchange rate risk to the textbook description of how big(ger) exporters manage the exchange rate challenges they face in international markets. Two aspects of the exchange rate challenges are addressed: exchange rate pass-through (ERPT) and FX-hedging.

Several factors impact SMEs ERPT; ownership structure, management characteristics, and the use of domestic funding sources might all impact SMEs ERPT. The family dominated ownership structure might allow for longer planning horizons among SMEs. A longer planning horizon might include a management strategy where temporary exchange rate shocks are passed-through to export prices differently among family-owned SMEs. When pricing is linked to permanent exchange rates, temporary shocks and current exchange rates might be a more relevant pass-through component for listed firms – or SMEs with other ownership structures. However, for financially constrained SMEs, pricing rules might still be linked to current exchange rates when the management of exchange rate risk has a shorter-term focus.

The combination of weak hedging possibilities, and ambiguous arguments regarding how firm size affects ERPT, complicates internationalization among SMEs. The entry costs associated with foreign market operations allow hedging a dual role, affecting foreign market operations and foreign market entry in the first place. As foreign market entry costs make internationalization an investment decision, the lack of hedging makes SMEs easily underinvest in international markets. A proper hedging strategy might help SMEs overcome this inefficiency. Managing exchange rate risk properly might therefore be a prerequisite for successful internationalization among SMEs

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