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Unintented consequences of German stock delisting legislation *

Michael Florig† Olivier Gossner‡

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Abstract

The German stock exchange act enables a company's management to delist the shares without shareholder consent, provided a sponsor of the delisting offers to acquire outstanding shares at a price equal to at least a six month average of the share price.

We capture the economic impact of this legislation in a model in which management has the option to delist the stock after public release of information. Delistings are likely to follow positive news on the asset value, which depresses the stock value even before information is released. This makes the option to delist even more attractive and generates a downwards self-reinforcing loop on stock price.

Such unintended consequences of the legislation could be mitigated via mandatory shareholder consent, similar to the current French or UK legislation, by giving minority shareholders an appraisal right as in the US, or by requiring an independent expert evaluation.

JEL Classification Numbers G12, G13, G14, G30, K20

Keywords delisting, stock valuation

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1 Introduction

A company's shares may be removed from the list of tradable securities on an exchange, hence *delisted*, for various reasons: it could be forced if it is the consequence of a merger or insolvency, or it could be a voluntary decision to take the company private. Bessler et al. (2022) study delistings in Germany between 2003 and 2015. During that period, 22 firms delisted voluntarily from the German stock exchange to become private.

In this paper we focus on the implications of voluntarily delisting legislation and the strategic aspects involved in the decision to delist. Following the reform of the German stock exchange law as of November 2015, by §39 (2) BörsG,[1] the management can take the decision to delist a company without shareholder consent. The delisting requires an unconditional public tender offer to all shareholders, offering a cash consideration of at least the six month volume weighted average price (VWAP) before the announcement. The law is very flexible on who can be the offeror: It can be the company itself, as was the case for the 2020 Rocket Internet SE delisting, or it can be the majority shareholder as in the delisting of Centrotec SE in 2021.[2] In another scenario, in 2019 the management of PNE AG signed an agreement with an intention to delist the company with a party which at the time was not even one of the existing material shareholders, for the case they would become the majority shareholder.[3]

[1] Börsengesetz §39 is available at https://www.gesetze-im-internet.de

[2] Cf. the public delisting tender offer document from Guido Krass December, 9th 2020.

[3] Cf. the public offer document from Photon Management GmbH, 31st, 2019 for the acquisition of PNE AG shares. Photon made the public offer while it was not among the 5 shareholders with holdings above the 3% legal reporting threshold. The management of PNE AG signed an agreement with Photon containing a declaration of intend to delist the company, should the offeror become majority shareholder. The offerer however managed to acquire only a 40% stake of PNE AG.

Following a delisting, the stock may continue trading in over-the-counter (OTC) market. Shareholders considering the offer insufficient can hold on to the shares. However, for some investors this possibly is only theoretical as they cannot hold on to the stock after delisting. This is the case for instance of ETFs, as the stock will be removed from the relevant index. Also some investors do not have the mandate to invest in non-listed stocks. Even investors who can hold on to a small percentage of non listed stocks in their portfolio have an incentive to sell while they still can. Mutual funds have to publish daily the net-asset value of their holdings. For them, positions without a daily observed market price generate an operational burden which is not worthwhile for a small position. In practice, these investors are close to being forced sellers at the tender. Apart from reduced liquidity, investors are subject to further disadvantages and reduced protection. Monitoring and enforcing that management acts in the general shareholders interest becomes more onerous.[4] More generally, stock listing comes with advantages to shareholders such as market liquidity and transparency obligations on the company side. Delisting means these advantages are lost, which implies a significant reduction in value to the free float shareholders.

We are interested in the potential implications of the option to delist on stock prices, distribution of the value generated by the company across shareholders and minority shareholder protection. We will analyze this within a model which aims at capturing the most important aspects of the delisting option. Situations where a majority shareholder manages to extract a disproportionate share of the value of the company have been analyzed in the context of squeeze-outs by Bebchuk and Kahan (2000). Their model is

[4]After delisting, there are reduced disclosure obligations for related party transactions and voting right notifications. Furthermore, the company then does not need to report earnings on a quarterly basis.

based on asymmetry of information between a controlling shareholder and the free float shareholders. Our model in contrast assumes no information asymmetries and is rather based on the asymmetry between management and general stockholders to delist and ability to hold onto an unlisted stock. In our model, delisting offers follow positive news on asset value, they take place at a discount compared to asset value even though the asset value is known publicly.

In section 2 we discuss in detail the case of the delisting of Rocket Internet in 2020. In section 3, we develop and analyze our model. In section 4 we discuss economic insights and policy recommendations.

2 Rocket Internet

Rocket Internet SE (RKET) is a German incubator / venture capital platform founded in 2007 with a focus on high-growth, internet business models. The company was listed on the Frankfurt stock exchange in October 2014 via an initial public offer (IPO) at €42.5 per share, valuing the company at €6.5bn.

On September 1st 2020, Rocket Internet announced the delisting of the shares with a buyback offer from the company at €18.57 per share. This corresponded to the 6 month VWAP and was close to the spot price of €18.94 prior to the announcement. The preceding six month window corresponded to a period of generally depressed share prices as a consequence of the Covid-19 crisis. The German stock index DAX and the share price of Rocket Internet's main known listed investments[5] had largely recovered by the time of the delisting offer, but the RKET share price had not.

The company's CEO together with his two brothers owned at the time

[5]See Global Fashion Group, Delivery Hero, United internet, Telecolumbus, Westwing, Marley Spoon, Home 24. See e.g. Ross (2020)

approximately 49% of the company's share capital. Through the tender offer, which was resolved by RKET management, the close to majority owners, including the CEO, increased their stake in the company, as they did not tender their shares.

At the time of the delisting, the book equity value of the company was €4*bn* (Rocket Internet, 2020b). The tender offer price valued the company at €2.5*bn*. This meant a 37% valuation discount of the RKET share prices relative to RKET's 2020Q2 book value. As of August 2020, H1 results (Rocket Internet, 2020a) suggest a fair value of listed and private equity investments of RKET above book value by €800*m*.[6] This implies an even larger valuation discount of 48% of the RKET shares compared to the fair net-asset value of RKET.

For companies with difficult to value assets, or highly levered companies, where small valuation errors of assets and liabilities have large impacts on the net-asset value of the company, it is not uncommon that the market values the stock at a level well below the book price of the company.

In the case of Rocket Internet, the balance sheet was relatively simple to value as it consisted largely of listed shares and cash. The private investments were largely minority participations. Based on fair values, the company reported (Rocket Internet, 2020a) to hold as of August, 31st 2020:

- €1.2*bn* in net-cash and cash equivalents
- €1.6*bn* of investments in shares of publicly listed companies of which €1.3*bn* were considered liquid

[6] €400*m* are driven by June, 30th fair value of private investments versus cost, and the remainder is the difference between Aug, 31st market value of listed investments versus June 30th reported book value, assuming no material changes in the book value of listed investments between June, 30th and August 31st.

- €800m of loans granted to companies
- €800m of share investments in private companies (value as of June 2020). Of these, €$475-600m$ were attributable to a $19-24\%$ share in single private company, Traveloka (Rocket Internet, 2021; Ross, 2020).

Rocket Internet's leverage was low, as the company reported €200m of liabilities only on their €4.2bn 2020H1 balance sheet.

The observed discount is quite uncommon for a company with such a simple and relatively liquid asset structure, i.e. mainly cash and listed shares for which there is little uncertainty on the value of the underlying assets. In fact, the discount was well outside the range of closed-end fund discounts: De Long and Shleifer (1992) report average discounts of $15-20\%$ from 1975-1980 and less than 5% from 1983-1989. Lochstoer and Tetlock (2022) analyze data from 1994-2020 of US, developed markets and emerging markets closed-end funds. They find that for the funds having the 5% highest discounts among closed-end funds, share prices trade $13-20\%$ below their net-asset values.

A delisting of Rocket Internet was discussed in the media and by equity analysts as a plausible scenario since 2017. In 2019, German media reported that the CEO was publicly questioning the reported fair value of the company's private assets, and that a delisting plan could be the motivation for this.[7]

According to German law §39.(2) BörsG, management has legal obligation to protect the interest of the company's shareholders when considering

[7]See Liam Proud, 27. September 2017: "Rocket Internet rejig exposes valuation mismatch", Breaking Views and Barclays RKET equity research papers from October 2017 onward. See also Jonas Rost 20. June 2019: "Die Wende des Oliver Samwer Warum Rocket Internet den Rückzug von der Börse plant, Manager Magazin". During the the ordinary general meeting in June 2019 the CEO mentioned, according to Rost, that private investments valued at €1.2bn might be worth less, perhaps only €200m.

a delisting, including minority ones. In the Rocket Internet case, alternative strategies could have led to more value to minority shareholders, while treating all shareholders equally. For instance, the company could have started by returning via dividends roughly €2.5*bn* to shareholders. For this they could have used net-cash and proceeds from selling their liquid public investments, all of which were all minority participations. They would then have retained the possibility to delist the remaining company with its private investment activity at a later stage. Since the 6 month VWAP is a lower bound for the offer price, it was also possible to offer a higher price. Koch (2021) argues that following exceptional circumstances such as the Covid induced market downturn, the 6 month VWAP may be a poor guide of a fair delisting offer price. According to this argument, in exceptional circumstances, the offer price may need to be higher than 6 month VWAP in order to be aligned with the spirit of the law.

Free float was mostly held by asset managers, hence via funds who incur operational costs for holding non-listed stocks, or may not even have the mandate to hold them. In effect, most free float shareholders exited their shares during the tender offer period, before the delisting became effective.

At the time of the announcement of the delisting, 51% of the stock was held by investors other than the controlling shareholders. Following the delisting offer, of the outstanding stock:

- 21% was bought back by the company,
- approximately 16% was bought by activist hedge fund Elliott Capital Management, who bought these RKET shares at a price slightly above the tender offer price,
- 14% remained with other 3$^{\text{rd}}$ party investors.

Arguably triggered by the delisting tender offer, 37% of the stock changed hands at a price well below the net-asset value per share. However, due to Elliott's share purchases, the company bought back only 21%.

In December 2021 the company announced a further proposal to shareholders: For each 4 shares held at the time of the announcement, shareholders had the right to sell to the company one share at €35. This price implied a premium of 88% relative to the delisting tender offer price. This valued the company at its book value of 2020 and with a 23% discount to the 2021 book value, which was not yet publicly known at that time. The majority shareholders assigned to Elliott their right to sell back the equivalent of the quarter of their shares to the company. This allowed Elliott to sell essentially their full Rocket Internet stake to the company at €35 a share. Other minority shareholders could obviously only sell back shares corresponding to 25% of their respective holdings at the €35 price.

In September 2021, 683 Capital Partners sued Rocket Internet and its CEO at Landgericht Berlin, a German civil court for €98m damages.[8] According to their argument, the delisting tender offer based on the six month VWAP was not reflecting the true value of the company, and thereby was against the interest of minority shareholders.

In summary, RKET share-price traded prior to the delisting at a value with a large discount to its net-asset value which is difficult to explain by standard arguments as most assets were liquid, easy to value and the leverage of the company was low. RKET share-price did not recover prior to the delisting from the March 2020 downturn, unlike the broader market and RKET's main known listed investments. This means that the tender offer

[8]This was widely discussed in the German media. See for example Sonja Behrens, 6th September 2022 "Hengeler soll 100-Millionen-Euro-Klage gegen Rocket Internet abwehren", *Juve* at https://www.juve.de

resulted in a significant loss of value for small shareholders. Using a theoretical model, we show how this apparent price anomaly may be explained as a consequence of the delisting mechanism itself.

3 Model

We consider a stock which is traded at two periods, $t = 0, 1$. The stock price is denoted p_0 at period 0 and p_1 at period 1. In between these periods, some information is publicly released on the value of the stock. At period 1, management, either because they are stockholders, or in agreement with some stockholder, may decide to delist the company. Delisting is then done at the average price between periods.

The decision as to whether to delist is strategic. For management, it is optimal to delist whenever share value exceeds the average price in order to capture the difference in value. In practice, there may be situations in which management cannot delist, e.g. due to a lack of a sponsor or funding, or can delist, but cannot capture all this difference. Typically some shareholders will not tender their shares, and there may be a risk for management of a successful legal action by some stockholders leading to a compensation above the average price. We capture this by assuming that management is able to make a successful tender offer with some probability ρ, and generally speaking ρ can be interpreted as the proportion of value above the delisting offer price that management is able to extract. The remaining proportion $(1 - \rho)$ of value above delisting price then goes to general stockholders.

To summarize the model:

1. At period 0, stock trades at price p_0,

2. then the value of the underlying net-assets is known, and their value

per share is denoted W,

3. at period 1 shares publicly trade again, at a price p_1,

4. management decides whether to delist and offer to tender the shares at price $p_d = (p_0 + p_1)/2$ and capture a share of $\rho > 0$ of the upside.

For management, it is optimal to intent delisting if and only if $W > p_d$. At period 1, without delisting the share value is p_1. If management intents a delisting, the value for general shareholders is $p_d + (1 - \rho)(W - p_d)$. Hence, if $\rho = 1$, management extracts all the value above p_d whenever it is optimal to delist, and general stockholders receive p_d per share. If $\rho = 0$ general stockholders receive the fair value per share W. The price p_1 at period 1 is then expressed by the formula:

$$p_1 = 1_{W<p_d} W + 1_{W>p_d}(\rho p_d + (1 - \rho)W) \tag{1}$$

The price p_0 is the (risk neutral) expectation of the value at $t = 1$:

$$p_0 = \mathbb{E}_W p_1 = \mathbb{E}_W \left[1_{W<p_d} p_1 + 1_{W>p_d}(\rho p_d + (1 - \rho)W)\right]$$

Consider a situation at time $t = 1$ in which the realized value is above p_d, $W > p_d$. It is then optimal for management to delist. Equation (1) becomes

$$p_1 = \rho \frac{p_0 + p_1}{2} + (1 - \rho)W;$$

and can be rewritten

$$p_1 = \alpha p_0 + (1 - \alpha)W \quad \text{with } \alpha = \frac{\rho}{2 - \rho}. \tag{2}$$

In order to solve for p_1, let us consider two situations at period 1 depending on the realization of W:

- $W > p_0$: If it were the case that $W \leq p_d$, there would be no delisting and hence $p_1 = W$. This implies that $W > p_d$, a contradiction. Hence, we must have $W > p_d$. Equation (2) then implies $W > p_1 > p_0$.

- $W \leq p_0$: If $W > p_d$, we must have $W > p_1$, but from equation (2) we must also have $W < p_1$, a contradiction. Thus $W \leq p_d$, there is no delisting and $p_1 = W$.

Therefore, the model predicts that delistings occur when asset value W exceeds the price p_0 observed at $t = 0$. We have also established the value of p_1 depending on W:

$$\begin{cases} p_1 = W & \text{if } W < p_0 \text{ (no delisting)} \\ p_1 = \alpha p_0 + (1-\alpha)W & \text{if } W > p_0 \text{ (delisting happens)} \end{cases}$$

Figure 1 represents the value to general shareholders as a function of W. The kink at $W = p_0$ corresponds to the exercise of delisting, point above which shareholders receive a fraction $(1 - \alpha)$ only of the value of the firm.

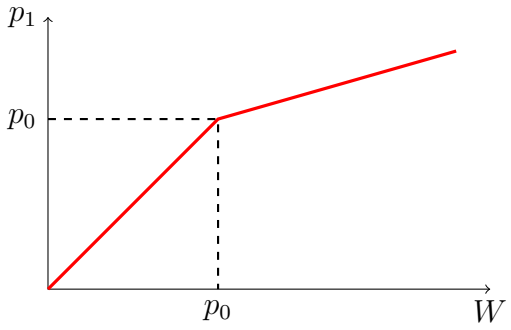

Figure 1: Price stock p_1 as a function of the underlying firm value W.

Now we solve for p_0 by expressing it as the expected value (under the risk-neutral probability, assuming an interest rate of zero) of the price p_1:

$$p_0 = \mathbb{E}_W \left[1_{W > p_0} (\alpha p_0 + (1-\alpha)W) + 1_{W < p_0} W \right] \tag{3}$$

We denote by $g(p)$ the expected return to the investor assuming that the price at $t = 0$ is p:

$$g(p) = \mathbb{E}_W \left[1_{W>p}(\alpha p + (1-\alpha)W) + 1_{W<p} W \right],$$

and (3) says that p_0 is a fixed point of g. If we denote by f the density function of W, we have:

$$g(p) = \int_{W>p} (\alpha p + (1-\alpha)W) f(W) dW + \int_{W<p} W f(W) dW,$$

so that:

$$\begin{aligned} g'(p) &= -(\alpha p + (1-\alpha)p) f(p) + \int_{W>p} \alpha f(W) dW + p f(p) \\ &= \alpha P(W > p). \end{aligned}$$

We deduce that $g(0) = (1-\alpha)\mathbb{E}W$, g is increasing and concave, and $g' < \alpha < 1$. This implies that the graph of g crosses the first diagonal at exactly one point, and the solution of equation (3) is unique. This is shown in figure 2. The same figure also illustrates the downwards spiral effect due to the delisting option: starting with a "fair price" of $\mathbb{E}W$, the loss of value above $\mathbb{E}W$ to shareholders implies that the stock value for them is only $g(\mathbb{E}W) < \mathbb{E}W$. This new price of $g(\mathbb{E}W)$ reinforces the option value of delisting, dropping the stock value to $g(g(\mathbb{E}W))$, and so on ... In the limit of this process, the prices reaches its equilibrium value p_0 that satisfies $g(p_0) = p_0$.

We obtain the following results:

1. The price p_0 at period 0 in the model is unique.

2. For $\rho = 0$ (no strategic delisting possible), $\alpha = 0$ and $p_0 = \mathbb{E}W$. Shareholders get their fair share of the surplus.

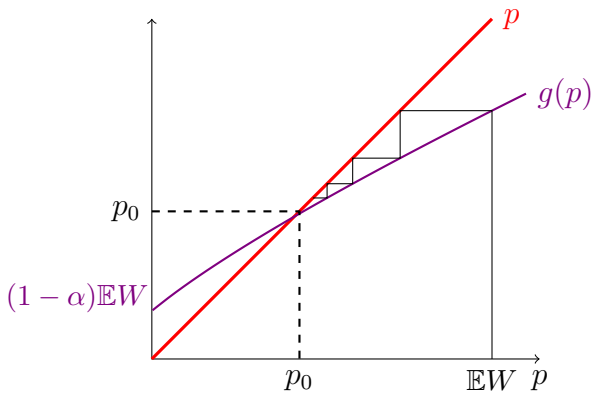

Figure 2: Price p_0 as a fixed-point of equation (3). The descending staircase to the right illustrates the downards spiral deflating effect of delisting on stock price.

3. When ρ increases, so does α, and p_0 decreases. The probability of a delisting, as well as the surplus extracted by management, goes up by two effects:

   (a) The first is the direct effect through which an increase of ρ makes delisting more often possible

   (b) The second is the indirect effect that higher chances of a delisting turn into a price depreciation (decrease of p_0 as well as of the price p at which the delisting takes place), which makes delistings even more profitable and more frequent. This induces a downwards spiral effect on p_0

4. For $\rho = 1$, $p_0 = p_1 = p = 0$, which means that delistings systematically take place, shareholders are expropriated and management extracts the entire value.

5. When it is optimal for management to delist, $W > p_d > p_0$, and thus $p_1 < W$: shares trade at a discount even though the book value is

known publicly. The option for the management to delist at a price lower than W creates a depreciation in the stock price. It is a consequence of the delisting option that the asset does not trade at a fair price.

The two period model is designed to qualitatively analyze the implications of the current rules on strategic delisting. In real life, if no delisting takes place at a certain period, management keeps the option to delist at a later period. For a growth stock paying no or low dividends, management hence retains the optionality on the entire asset. The fact that the option is really American style and not European, has a significant impact, increasing the option value and decreasing the stock price further.

We illustrate the materiality of the impact of the delisting option measured by the discount at time 0 of the stock price p_0 relative to the net-asset value $\mathbb{E}W$ of the company in table 1. In our numerical computations ρ ranges from 75% to 95% and the volatility ranges from 40% to 80%.[9] Table 2 illustrates probabilities of delisting for various model parameters.

ρ	$\sigma = 40\%$	$\sigma = 80\%$
75%	14%	25%
85%	19%	31%
95%	31%	51%

Table 1: Discount of p_0 relative to $\mathbb{E}(W)$. Computations assume a log-normal distribution of the realized asset value W.

As we see from table 1, the discount on stock price induced by the prospect of delisting can be very significant. In the most extreme scenarios, where

[9]In the case of RKET there were roughly 75% of the free float abandoning the stock at or close to the tender offer price, selling either to the company or to Elliott at a slightly higher price. The remainder held on to the stock hoping to extract a higher value than the offer price. The implied volatility of the type of listed and unlisted stocks of the RKET portfolio, when available, is typically very high.

ρ	$\sigma = 40\%$	$\sigma = 80\%$
75%	56%	48%
85%	63%	55%
95%	76%	69%

Table 2: Probability of delisting. Computations assume a log-normal distribution of the realized asset value W.

management can extract a large part of surplus and asset values are very volatile, this discount can be up to 50% or more. In less dramatic scenarios, where it is more difficult for management to extract the surplus and asset values are more stable, the discount is still significant. These computations indicate that the effect of delisting rules on stock market cannot be assumed to be negligible.

4 Economic insights and policy recommendations

The option to delist and buy back shares creates an asymmetry between management, who may also be a shareholder or might collaborate with a 3^{rd} party acting as offeror to tender the shares, and other shareholders. In case the projects undergone by the company go well, there is an upside which is then captured by management. In case of a downside scenario, the shareholders are fully exposed. This, in turn, deflates the price of the asset. The more the asset price is deflated, the lower the price at which management can exercise the buyback option, which increases their incentive to delist, and further deflates the price. In the extreme situation where shareholders anticipate that management is capable of extracting a large portion of surplus from the buyback whenever profitable for them, the effect is so strong that the asset price can be decoupled from the book price of the company.

The losers in such situation are minority shareholders. Those often hold their shares via mutual funds who are often de facto constrainted to sell their participations in case of a delisting. Even if they hold the shares directly, it may not be rational for them to bet their investments on a stock which becomes illiquid, due to the discretionary decision of the company's management, while being subject to reduced shareholder protection under limited transparency as a result of the delisting.

The presence of activist hedge funds, who potentially enter the capital, lowers the probability of full success of the tender offer. In the case of Rocket Internet this had some mitigating side effect for the shareholders' holding on to their shares, but only a limited one.

Our model offers one possible explanation why the RKET share-price has not recovered from the Covid-related market dip of Spring 2020 by September 1st 2020, while the broader market and RKET's main known listed assets had. The market may simply have attributed a material likelihood of a RKET delisting as the scenario was already discussed in the press (or more generally measures leading to a similar outcome for free float shareholders).

Without a reform of §39 BörsG, we could envision that the threat to delist may be strategically used by management of listed German companies beyond the acquisition of the company by a large shareholder. This threat could for instance be used by management in a M&A situation supported by management, but not by a large fraction of shareholders. A credible threat to delist may be used as a tool to push investors to accept the offer to buy their shares, as their investment may become illiquid, should they refuse the offer.[10]

[10]This was, in particular, the accusation of one of PNE AG's investors made to the management of PNE in relation to the public offer to acquire PNE AG in November 2019 coupled with the intention to delist agreed between the offeror and the management of PNE AG. See for example Philipp Habdank, 5. November 2019: "Aktionär Enkraft greift

In order to mitigate the risk that managements, in cooperation with a shareholder or a potential shareholder, acts against the interest of the broader shareholder base, and to strengthen the German capital market, we recommend to reform §39 BörsG by removing the option to delist a company's shares at the managements discretion or to enact further shareholder protection safeguards. In our view, a decision with such large and potentially negative implications for shareholders, should be taken by the general assembly of shareholders requiring a large majority,

The French and the UK regulations are two examples how this may be structured.[11] For the UK, the FSA Handbook requires via LR 5.2.5. (2) that at a general meeting:

- 75% of shareholders approve,
- in case there are controlling shareholders with a stake of 30% or more, then the majority of the independent non controlling shareholders need to approve.

In France, a shareholder or group of shareholders can launch a public offer followed by a delisting, provided they hold at least 90% of the shares and certain other conditions are met.[12]

Furthermore the valuation of buyout measures like a delisting (or similarly a squeeze-out) should not be based in an algorithmic way solely on the market price of the stock without additional safeguards such as an appraisal by an independent authority.

PNE-Vorstand an", *Finance Magazine* at https://www.finance-magazin.de

[11] A precise proposal for German version would need to take into the account the interplay with the broader legal framework. This is obviously beyond the scope of this paper.

[12] See article P 1.4.2 of the Euronext Paris rule book II and Règlement général de l'AMF, livre II, chapitres VI and VII.

Beyond a concern for minority shareholder protection, discounts on share prices, due to a the threat of a potential delisting for the wrong reasons, may also be harmful for the efficiency of the broader market. Indeed, it may increase the costs at which firms can raise capital, in case strategic delisting is perceived to be a possibility at a later stage, even if their management does not intend to use this option.

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