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Suits in Europe
– A Model of Percentage
Limits and Collusion

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- A MODEL OF PERCENTAGE LIMITS AND COLLUSION

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We address one of the cardinal puzzles of European corporate law: the lack of derivative shareholder suits. We explain this phenomenon on the basis of percentage limits which require shareholders to hold a minimum amount of shares in order to bring a lawsuit. We show that, under this legal regime, managers will collude with large shareholders by means of settlements or bribes that impose a negative externality on small shareholders. Contrary to conventional agency models, we find that large shareholders do not monitor the management; as a consequence, there is no free riding opportunity for small shareholders.

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Introduction

In the vast majority of European jurisdictions minority shareholders can bring a derivative lawsuit against the management for breach of fiduciary duty.¹ Surprisingly, in spite of corporate fraud, there are practically no such lawsuits in continental Europe. Both the European Jurists Forum as well as the German Jurists Forum have issued experts opinions that include various proposals for a better regulation of management liability.² The fact that there are no derivative lawsuits is puzzling. Given that managerial actions are not directly observable, we should expect to have some misconduct and some lawsuits. If shareholders decided not to bring lawsuits at all, the managers would misappropriate as much or as often as possible. Clearly, shareholders would then bring at least some lawsuits. As a general result, Jensen & Meckling (1976) famously articulated that the principals choose some positive monitoring effort to deter managerial misconduct.

So far no theoretic models have been developed to explain the puzzle of no derivative lawsuits. Intuitive reasons, as offered in the legal literature, include the argument that shareholders are subject to a free rider problem.³ We offer an alternative explanation for why there are no lawsuits based on the law of percentage limits: in a large number of European countries shareholders can only bring an action if they hold a minimum stake of typically 5% or 10%.⁴ Given that not all shareholders are allowed to bring a legal action, the manager can misappropriate corporate assets and collude with potential plaintiff-shareholders by bribing them. Since shareholders receive a fraction of the damage payment proportional to their shareholdings, it will always pay for the manager to misappropriate a given amount and settle with potential plaintiffs for a fraction of the amount misappropriated. Such collusive agreements impose a negative externality on small shareholders which can be described as an extreme form of agency costs.

Our paper ties in with the scarce theoretical literature on derivative shareholder suits (Stepanov, 2006, Stremitzer 2007) as well as with agency models (see Shleifer & Vishny, 1997). Private benefits are a well known phenomenon absent percentage limits and have been described as an agency problem between the management and the shareholders. It is conventionally believed that large shareholders mitigate the agency problem between the management and the shareholders but they create a new agency problem, namely between large and small shareholders (Black, 1992; Admati, Pfleiderer & Zechner, 1994; Gilson & Gordon, 2003). Empirical evidence, which shows that large blocks trade at a higher price than single shares, strongly supports this theory (Barclay & Holderness, 1989 and 1992; Zingales, 1995). Of course, collusion between large shareholders and managers cannot explain, absent percentage limits, why there are no lawsuits. Small shareholders would monitor and sanction misappropriation by large shareholders. We would expect some misappropriation and some lawsuits, contrary to our observation in continental Europe. Other than most agency models (e.g. Alchian & Demsetz, 1972; Jensen & Meckling, 1976; Grossmann & Hart, 1983; Demsetz, 1986), we find an equilibrium with zero lawsuits and zero monitoring, where the managers collude with plaintiff-shareholders. If percentage limits are lowered beyond a certain threshold, we obtain the conventional results. Managers will sometimes misappropriate corporate assets and shareholders will sometimes

¹ In greater detail see Kalss (ed., 2005).

² See Kalss (2005a); Baums (2000). The scholarly discussion includes e.g. Eckert, Grechenig & Stremitzer (2005).

³ See Adams (1997). However, Adams does not explicitly draw the connection to the complete absence of derivative lawsuits.

⁴ 5% (Czech Republic, Spain, Slovakia), 10% (Austria, Bulgaria, Hungary, Slovenia, Sweden); see also 1% (Germany), 2,5% (Italy).

sanction this behavior. Our results are consistent with empirical data which show that in countries *with* percentage limits there are no lawsuits (Kalss, 2005) and in countries *without* percentage limits, such as the United States and England, there are lawsuits (Cheffins & Black, 2006).

A basic model of shareholder suits

In a given firm, there is a manager M, shareholders with a stake larger than the percentage limits required to bring an action (plaintiff-shareholders) and shareholders with a stake lower than the percentage limits, thus not entitled to bring an action (non-plaintiff-shareholders). We define $\mu \in (0;1)$ as the sum of the shares of the plaintiff-shareholders, observable by both parties. Consequently, the remaining shareholders hold a total stake of $1-\mu$, where μ depends on the ownership structure and on percentage limits provided for by the national laws. The lower the legal percentage limit to bring an action is, the larger the total share of plaintiff-shareholders is; hence, the higher is μ . That is, the total share that will be able to bring an action will be larger if the percentage limit is 1% than if it were 10%. Any shareholder that holds between 1% and 10% would only be allowed to bring an action in the first case.

For simplification, we treat all plaintiff-shareholders as one coalition P and abstract from collective action problems. Under the current law, only very few, closely cooperating shareholders are allowed to bring an action. This is not crucial to our main results as they hold true for n plaintiff-shareholders who act independent from each other. Since non-plaintiff-shareholders cannot bring an action they are not part of our model. Under the European national laws, small shareholders could form a coalition to reach the percentage limit required to bring a lawsuit jointly. However, the costs of bringing a lawsuit collectively would be prohibitively high (e.g. due to the fact that it is practically impossible to get contact data of other small shareholders).⁵

At $t=1$, the manager decides whether or not to misappropriate a given fraction $\alpha \in (0;1)$ of the corporate assets $A \in (0;\infty)$ to the detriment of all shareholders, where αA represents a self-dealing opportunity. This kind of misappropriation refers to all kinds of wealth transfers that somehow benefit the manager (often referred to as tunneling, e.g. Johnson et al. 2000), including the misappropriation of an investment opportunity that belong to the corporation, the sale of assets to the manager or a close friend below market value, the employment of an unqualified applicant who has a close relationship with the manager, the use of the staff car for private purposes. We assume that the opportunity for misappropriating assets is common knowledge; but whether or not M has actually engaged in misappropriation is unknown to the shareholder. This reflects the fact that everybody has some minimum information about potential (not actual) misappropriation. Any investor with a share large enough to bring an action is likely to be represented in the board and thus has direct access to such information.

At this point, M can also decide whether or not to offer P a bribe $\Phi \in [0;\infty)$ in order to induce P not to bring a lawsuit. The payoff of the manager for not stealing is zero.

At $t=2$, P decides whether or not to bring an action against the manager, depending on the offer he may have received. If a suit is successful the damages paid go to the corporation, i. e. each shareholder benefits from the damage payment according to his individual participation in the

⁵ See Kalss/Eckert (2005) summarizing the European situation.

corporation. The litigation costs c are borne by the loser (that is, by P if he loses and not by all shareholders) and include the costs of the winning party (Eckert, Grechenig & Stremitzer, 2005). Instead of bringing a lawsuit, P can decide to accept the bribe or pre-trial settlement offer, respectively, if M has made one. Such settlements are enforceable either in the form of a contract or as a procedural agreement. Note that M has the power to make a take-it-or-leave-it-offer due to the specific legal environment under which (1) it is always P who makes the last decision on whether or not to bring a lawsuit, (2) suits are limited to a certain time period after the damage occurs and (3) once a lawsuit has been brought, settlements are prohibited (or require the consent of minority shareholders).

We assume that M and P are risk neutral and that the court decisions are correct. The fact that judges, other than the shareholders, can observe the manager's decision in our model is due to comprehensive legal powers, including the possibility to request and obtain undisclosed documents. Simple business decisions are not part of our analysis, since managers are shielded from liability under the business judgment rule or a European counterpart.



All formal proofs are in the Appendix.⁶

A pure strategy of M includes a combination of the stealing and the bribing choice. A pure strategy of P consists of the choice to bring a lawsuit for every possible offer he could receive.

Lemma 1. *If M decides to make an offer $\Phi > 0$, the offer will always be $\mu\alpha A$ and P will always accept it. M will only offer $\mu\alpha A$ if he has previously stolen αA .*

Proof: M will only make a positive offer if he has previously stolen αA ; if he had not stolen it would be better for him not to make an offer. The intuition behind the fact that the only possible offer is $\mu\alpha A$ is the following: $\mu\alpha A$ is the amount P can obtain by bringing a lawsuit (that is the stolen amount αA multiplied with P's stake μ); thus, M will not make an offer larger than that. Any offer lower than $\mu\alpha A$ would inform P of an illegal conduct; P would reject the offer, bring a lawsuit and obtain full compensation for his loss ($\mu\alpha A$). Of course, P would accept an offer $\mu\alpha A$. ■

We define M's reduced set of pure strategies as $\{M_h, M_d, M_c\}$; where M_h means that the manager acts honestly and offers no bribe, M_d that the manager acts dishonestly, that is, M misappropriates αA without offering a bribe to P, and M_c means that M acts collusively, that is he misappropriates αA and offers P a bribe $\mu\alpha A$. We define P's reduced set of pure strategies as $\{P_n, P_s\}$, such that (if no offer was made), P_n means that P does not bring an action, and P_s means that he brings an action. If an offer was made, P accepts it in both cases.

The payoffs are as follows [P,M]

	M_h	M_d	M_c
P_n	0, 0	$-\mu\alpha A, \alpha A$	0, $(1-\mu)\alpha A$
P_s	$-c, 0$	0, $-c$	0, $(1-\mu)\alpha A$

⁶ Downloadable on one of the authors' homepages.

Proposition 1.1. *The manager and the plaintiff-shareholder will always act collusively (M_c, P_s); this directly implies that the shareholder will never bring a lawsuit.*

Proof: We eliminate strictly und weakly dominated strategies (M_h, P_n, M_d). ■

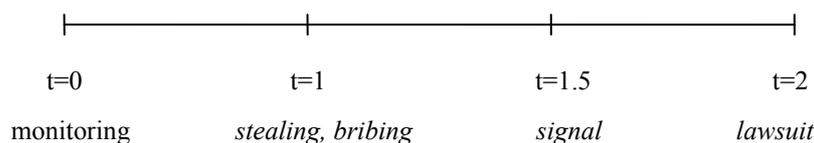
Proposition 1.2. *The result of proposition 1.1. holds true in a game of n plaintiff-shareholders.*

Proof: The rationale is the same as in Lemma 1 and Proposition 1.1. for every single shareholder of n potential plaintiffs: M is better off stealing and bribing all plaintiff-shareholders than to be honest because $(1-\mu)\alpha A > 0$. If M decided to steal and not to offer bribes to all plaintiff shareholders, it would be optimal for any shareholder not bribed to bring a lawsuit. If M decided to steal with some probability and not to offer bribes to all plaintiff shareholders, at least one shareholder that has not been offered a bribe would bring a lawsuit with some probability, according to the volunteer's dilemma (Poundstone, 1992). ■

Monitoring

It is conventionally believed that large shareholders monitor the managers and that small shareholders are free riders (Admati, Pfleider & Zechner, 1994). Large shareholders have lower monitoring costs per single share; thus, they will have more incentives to monitor.⁷ This disadvantage is argued to be offset by private benefits that large shareholders receive in compensation for their costs. In contrast to the dominant view, developed against the background of American law where every single shareholder can bring an action, our model predicts that the large shareholders have no incentives to incur those monitoring costs. Since the large shareholders know that the management will misappropriate corporate assets and offer them a part of the proceeds, large shareholders will choose zero monitoring (and small shareholders have nothing to free ride). This can be pointed out by introducing a monitoring decision and a signal to the basic model.

Assume that P chooses monitoring costs $m \in [0; \infty)$ at $t=0$, which the manager M can observe. The manager knows how frequently P asks for information and how detailed the information has to be. After the stealing and bribing decision at $t=1$, P receives a signal $S \in \{0,1\}$ that indicates whether or not M has breached the law, where 1 means that he has stolen αA and 0 that he has not stolen αA . We define $s(m) \in [0.5; 1)$ as the probability that the signal is correct. If P chooses zero monitoring costs, the signal is random [$s(0)=0.5$]. If P increases his monitoring costs he will receive a better signal at a marginally decreasing rate [$s'(m) > 0, s''(m) < 0$]. We also assume that S is asymptotically correct [$\lim_{m \rightarrow \infty} s(m) = 1$] and that the first marginal unit of monitoring is infinitely useful [$\lim_{m \rightarrow 0} s'(m) = \infty$]. The signal function $s(m)$ is common knowledge. As in the basic model, the decision to bring a lawsuit follows at $t=2$.



A strategy of M includes a combination of the stealing choice and the bribing choice for every possible monitoring choice of P. A strategy of P includes a combination of the monitoring choice and the choice of bringing a lawsuit, for every possible combination of a signal and a bribe offer.

⁷ The same argument was made with regard to shareholder suits; see van Aaken (2004), Eckert, Grechenig & Stremitzer (2005).

Since m can be observed by both players, we can first solve the subgame starting at $t=2$ for a given m . As in Lemma 1, we eliminate implausible offers and are left with $\mu\alpha A$ as the only possible offer $\Phi > 0$.

We define P's reduced set of strategies as $\{P_a, P_v, P_c, P_b\}$, such that (if no offer was made): P_a means that P does not bring an action, independent of the signal (apathetic), P_v means that P brings an action if $S=1$ and does not bring an action if $S=0$ (vigilant), P_c means that P brings an action if $S=0$ and does not bring an action if $S=1$ (confused), P_b means that he brings an action independent of the signal (belligerent). If an offer $\Phi = \mu\alpha A$ was made, P will accept it under all four strategies.

This leaves us with the following strategy space: $\{P_a, P_v, P_c, P_b\} \times \{M_h, M_d, M_c\}$. Since m are sunk costs, they are not displayed.

	M_h	M_d	M_c
P_a	0, 0	$-\mu\alpha A, \alpha A$	0, $(1-\mu)\alpha A$
P_v	$[1-s(m)](-c), 0$	$[1-s(m)](-\mu\alpha A), [1-s(m)]\alpha A - s(m)c$	0, $(1-\mu)\alpha A$
P_c	$s(m)(-c), 0$	$s(m)(-\mu\alpha A), s(m)\alpha A - [1-s(m)]c$	0, $(1-\mu)\alpha A$
P_b	$-c, 0$	0, $-c$	0, $(1-\mu)\alpha A$

Proposition 2.1. *The manager and the plaintiff-shareholder will always act collusively (M_c, P_b), that is, the shareholder will never bring a lawsuit.*

Proof. As in the Proof of Proposition 1.1., we eliminate strictly und weakly dominated strategies (M_h, P_a, P_v, P_c, M_d). The fact that M steals αA and offers P a bribe $\mu\alpha A$ (which P accepts) is independent of the signal. ■

Proposition 2.2 *P chooses zero monitoring.*

Proof. Because of the strategic setting, both M and P know that there will be collusion. Since no information can be obtained from the signal, P will not invest in monitoring. ■

Proposition 2.3. *The results of propositions 2.1 and 2.2 hold true in a game of n plaintiff-shareholders.*

Proof. As in Proposition 1.2. ■

Costs of misappropriation

Typically, misappropriation is costly; therefore, the manager's gains are somewhat lower than the amount stolen. We discount the gains by $\beta \in (0;1)$, where β will be close to 1 if misappropriation is almost costless and close to 0 otherwise. Concealment costs are common knowledge and include establishing a separate company, bribing the news media, potential criminal sanctions, public enforcement etc. Any reputational gain M may receive for an honest behavior is captured by β as well (by increasing the opportunity costs of stealing).

	M_h	M_d	M_c
P_a	0, 0	$-\mu\alpha A, \beta\alpha A$	0, $(\beta-\mu)\alpha A$
P_v	$[1-s(m)](-c), 0$	$[1-s(m)](-\mu\alpha A), [1-s(m)]\beta\alpha A - s(m)[c+(1-\beta)\alpha A]$	0, $(\beta-\mu)\alpha A$
P_c	$s(m)(-c), 0$	$s(m)(-\mu\alpha A), s(m)\beta\alpha A - [1-s(m)][c+(1-\beta)\alpha A]$	0, $(\beta-\mu)\alpha A$
P_b	$-c, 0$	0, $-[c+(1-\beta)\alpha A]$	0, $(\beta-\mu)\alpha A$

We distinguish between two cases: $\mu < \beta$ and $\mu > \beta$.

Proposition 3.1 *With high percentage limits, $\mu < \beta$, there is the same equilibrium as in Proposition 1.1, with stealing, bribing, no lawsuits, and no monitoring.*

Proof: As for Proposition 2.1-2.2. ■

Proposition 3.2. *With low percentage limits, $\mu > \beta$, we find a mixed strategy equilibrium, where M sometimes steals but never bribes P . There is some monitoring and there are some lawsuits.*

Proof. M_c is strictly dominated by M_h , since collusion is not profitable anymore. M_h , M_d , P_a , and P_b cannot be part of a pure strategy equilibrium since P 's best reaction to an honest manager would be never to bring a lawsuit. Of course, then M 's best answer would be to steal to which P 's best reaction would be to bring a lawsuit to which M 's best reaction would be to be honest. Consequently, there must be some stealing and some lawsuits. Since the signal has an impact on the outcome, there will be some monitoring. ■

Proposition 3.3. *The fact that with high percentage, there is collusion, and no monitoring; and the fact that with low percentage limits there is some stealing by M , some litigation, and some monitoring holds true for n plaintiff-shareholders.*

Proof. Follows from Proposition 1.2, 2.3, 3.1 and 3.2. ■

Suits & monitoring

The first case ($\mu < \beta$) stands for high percentage limits or low costs of stealing. With high percentage limits the coalition of potential plaintiff-shareholders is small (low μ). As an outside observer, we may not be able to exactly determine the costs of stealing in order to know which set of parameters represents our current situation. However, we know that $\mu < \beta$ is the only set of parameters that leads to an equilibrium where there are no lawsuits at all. Since empirical data suggests that there are no lawsuits, $\mu < \beta$ seems to best represent the current situation. This is consistent with the fact that current European percentage limits are relatively high, typically requiring shareholders to hold stakes of at least several million Euros.

If the percentage limits are decreased beyond a certain threshold, the manager will not be able to bribe the coalition of plaintiff-shareholders. At a certain point ($\mu > \beta$) the manager's private benefits $\beta\alpha A$ are simply not large enough to bribe all potential plaintiff-shareholders, so that M 's strategy to steal and bribe P is strictly dominated by M 's strategy to act honestly. Clearly, this result cannot only be reached by lowering the percentage limits but also by increasing the costs of stealing, e. g. through more severe criminal sanctions. Of course, it is difficult for legislators to exactly determine the limiting value $\mu = \beta$ because the legislators do not know the exact costs of stealing (and because μ and β vary across corporations). How far the percentage limits need to be decreased (or the costs of stealing be increased) is an empirical question. Only if percentage limits are abandoned altogether we can be sure that $\mu > \beta$ in all firms.

Extensions

Repeated game & bargaining power

Plaintiffs may hold some of the bargaining power, e.g. due to the threat to dismiss the management. However, the collusion results ($\mu < \beta$) are qualitatively the same as long as the shareholder's negotiation power is not unrealistically large (where he would leave the manager with a loss). A simple fairness premium would only affect the division of benefits but not influence the collusion equilibrium. In a repeated game, such an equilibrium could even be

maintained in the extreme case of a large bargaining power for the shareholders.⁸ Since the shareholders want to participate in the private benefits of the managers in the future, they will not demand a bribe that leaves the manager with a loss.

For the case of low percentage limits ($\mu > \beta$), one may argue that there are no lawsuits in a repeated game, because M and P play the social optimal strategy, i.e. the cooperative strategy, where there is no stealing, no lawsuits, and no monitoring. However, this cannot be an equilibrium even in a repeated game, because M will steal at least in one period, since P cannot punish M in the next period (M acts honestly and has nothing to fear from a lawsuit). In anticipation, P will bring a lawsuit with some probability.

Additional monitoring effort

The model assumes that the opportunity of misappropriation is common knowledge and that the shareholders can bring a lawsuit even without any monitoring effort. First, the model could easily be extended to a first-step monitoring decision which tells P whether there is an opportunity for misappropriation or not. In the first case, the game follows as described (with sufficient knowledge to bring a lawsuit); otherwise, the game ends immediately, with no lawsuits due to the absence of potential plaintiffs. Our main results explaining the absence of lawsuits are qualitatively the same. Most importantly, in the basic model, such "first-step" monitoring would only affect the distribution of private benefits, that is, it would not deter managerial misconduct and it would not allow free riding by the non-plaintiff-shareholders.

The fact that no (additional) monitoring is needed to bring a lawsuit in our basic model goes in line with European procedural law which is governed by an *inquisitorial system* where the judge collects the evidence (as opposed to an adversarial system), and with the fact that the plaintiff could incur "monitoring costs" *after* the misappropriation which count as litigation costs c , and thus, are subject to reimbursement under the European Rule of litigation costs.

Collective action among non-plaintiff-shareholders

A potential extension of our model includes endogenizing α , with $\mu(\alpha)$ and $\mu(\alpha)' > 0$. If costs of forming a coalition are constant but not prohibitive for small shareholders, then the share of plaintiffs is smaller if the amount misappropriated is lower. This is due to the fact that for some plaintiffs it will not pay to enter into a coalition. In this case, the manager will choose an α^* such that $\mu(\alpha^*) < \beta$ in order for his payoff to be positive. As collective actions become less costly, there will be less misappropriation; however, there will be no litigation due to collusion and no monitoring according to our basic model. In fact, this would rule out an equilibrium with litigation ($\mu > \beta$).

Discussion

We have argued that the lack of derivative lawsuits in continental Europe is due to percentage limits as provided for in the various jurisdictions. Percentage limits require shareholders to hold a minimum share of typically 5 or 10% in order to bring an action against the management. These widespread legal provisions allow the managers to misappropriate corporate assets and bribe the potential plaintiff-shareholders, imposing a negative externality on the remaining shareholders. Our analysis implies that we should observe lawsuits in countries without percentage limits and no lawsuits in countries with (high) percentage limits. This is consistent

⁸ That is, if the discount factor is not too high (cf. repeated prisoner's dilemma).

with the empirical data mentioned in the introduction. As an exception, few or no lawsuits are reported in Switzerland and France where there are no percentage limits. This seems to be due to national peculiarities, like a percentage limit for initiating an investigation essential for bringing a lawsuit (Switzerland)⁹ or the fact that legal expenses cannot be shifted to the company so that expected returns from lawsuits are typically negative (France) (Cheffins & Black, 2006). Since our model does not apply to these countries, further research in this regard could be fruitful.

Where collusion is profitable, all shareholders choose zero monitoring, the managers choose to misappropriate corporate assets and to offer the potential plaintiff-shareholders a bribe which they accept. Such settlements are different from regular settlement in that they have no deterrence effect on the manager's decision to misappropriate. If percentage limits are decreased beyond a certain threshold, potential plaintiff-shareholders will monitor the managers and the managers will misappropriate corporate assets less often than before. In this case, lawsuits will deter managers from their illegal conduct. The same result can be achieved by increasing the costs of stealing beyond a certain threshold. To increase the costs of stealing, however, is likely to be more difficult than simply reducing the percentage limits. Yet another possibility for the legislator to deter misappropriation, is to facilitate collective lawsuits. If getting together is less costly for shareholders, the total share of shareholders able to bring an action will be larger.

Our analysis suggests that percentage limits increase the problem of bribery and misappropriation. However, one cannot conclude without empirical evidence that lower percentage limits would lead to higher social welfare. That is so because with high percentage limits there is more misappropriation and thus higher costs of stealing but no monitoring costs and no litigation costs. In turn, with low percentage limits, the total costs of stealing are clearly lower but costs associated with litigation and monitoring are higher. At this point, we can only say that an equilibrium where managers steal and bribe the large shareholders is unlikely to be socially optimal because it leaves property rights partially unprotected and small shareholders will invest less than optimal.

Potential extensions of our model involve endogenizing the ownership structure under a regime of percentage limits, biased courts, special rules of litigation and other national peculiarities. We have tried to spark a discussion on shareholder suits that goes both beyond the verbal arguments offered so far in the legal literature as well as beyond the empirical studies offered in the economic literature. The paper emphasizes the importance of the laws on percentage limits (that until now have been neglected) and shows the potentially severe consequences.

⁹ Art 697b of the Swiss Obligationenrecht.

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