

Integrating Dividends, Interest and Value in Commercial Damage Cases: Toward a Comprehensive Methodology

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Abstract

This article suggests that economic experts should consider moving away from accrual based, accounting centered lost profits and toward cash based lost dividends when calculating economic damages in cases where shareholders are looking to recoup past lost profits. The discussion here is limited to commercial damage claims where lost profits are the measure. It is shown here that when experts rely on cash dividends as the variable of loss to shareholders, a more comprehensive, integrated and just system of calculation is recognized, increasing economic certainty in damage reports and possible subsequent verbal testimony.

Introduction

In commercial damage cases, herein confined to lost profits cases, the court allows a shareholder (plaintiff) that experienced past lost profits to recoup the value of, and the interest (foregone interest) on the profits had the plaintiff been able to invest the lost profits in some capacity, during the period of loss.

Although most state courts agree on the concept of providing some form of remuneration for foregone interest in hopes of making the plaintiffs whole, they often disagree on the rate of interest applied. The state based rate of interest is typically statutory in nature, and applied to the yearly lost profits in a simple or compounded manner. Similarly the federal court system allows foregone interest, but unlike the state court system, delegates the development and application of the foregone interest rate to the attorneys and their respective economic experts. However, there appears to be a gap in the literature with respect to the numeric application of calculated foregone interest to cases where the subject company had accrued past profits but where no cash dividends were paid, and where all of the accrued profits were reinvested in the company for future growth.

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The Problem

The underlying proposition in this article is that if all of a company's accrued profits are reinvested internally and no cash dividends are paid to shareholders and, where the company is experiencing increased profit growth, the court accepted method of calculating lost profits may necessitate a modification or possible rejection in its entirety.

Companies which invest most of their accrued profits internally are usually classified as high growth and are many times best suited as investment instruments for investors seeking long term increases in the underlying value of the security. This is compared to companies which distribute a substantial portion of its accrued profits back to investors in the form of periodic cash dividends, many times used by investors as vehicles to assist in providing cash flow to fund life expenditures. The percentage of profits paid out in cash dividends is typically referred to as the dividend payout ratio. The following table shows the percentage of profits paid out in cash dividends each year for publicly traded companies, based upon the market sector. The analysis is as of the fourth quarter of 2015.

Dividend versus Non-Dividend Paying Companies Dividend Payout Ratio – Top 10 Ranking		
Ranking	Sector	%
1	Utilities	85.5%
2	Consumer Non-Cyclical	63.8%
3	Basic Materials	55.5%
4	Services	41.6%
5	Technology	41.6%
6	Financial	36.8%
7	Consumer Discretionary	34.6%
8	Capital Goods	30.8%
9	Healthcare	25.1%
10	Conglomerates	24.5%

Source: CSImarket.com/screening/dividend

What becomes clear is that companies with limited growth, such as utility companies (ranked #1 on the previous chart) where there are, and in many cases a government provided monopoly and where growth is predicated on fixed rate government price increases and in most situations a slow profit growth trajectory, the company typically

distributes most of its profits to shareholders in the form of a cash dividend. Per the table above, Utilities distribute approximately 85.5% of all accrued profits in the form of a cash dividend, versus healthcare companies which distribute approximately 25.1% of its accrued profits in dividends. Not unlike publicly traded companies, private companies experience similar phenomena, where there are differences in dividend payout ratios based upon sector and perhaps other factors such as tax minimization strategies. The difference in dividend payout ratio can impact multiple components of a commercial damage claim where lost profits are typically considered the damages.

In this article, an applied methodology is presented to assist the damages expert with calculating lost profits and foregone interest while keeping in mind the possibility of lost equity value. This application will be of particular interest to the expert who, through the course of a year, performs economic analyses and writes damage reports pursuant to lost profits cases. It is shown that in certain situations the expert is over calculating lost profits and foregone interest and in other situations the expert is not calculating enough. Similarly, it may be shown that when calculating lost profits and foregone interest, the expert also needs to consider the possibility of damage to the underlying value of the company. This paper deviates from many preconceived economic methods relied on by the court to substantiate damage claims, where judges are inclined to believe that there cannot be asset damages, lost profits and foregone interest simultaneously.

Foregone Interest

Since many companies experience different dividend payout ratios, the application of foregone interest in federal and state commercial damage cases is more complex than what many finance, accountant and economic experts suppose; and the differences in policy should be considered when calculating economic damages.

Experience as a defense expert has shown that many plaintiff experts apply foregone interest by simply taking all of the accrued lost profits¹, also referred to as lost profits before tax income², in each of the historical years of the claim applying a simple or compounded foregone interest rate to the applicable year³. The expert then typically calculates the value of the foregone interest loss for each year based on a simple or compounded interest rate methodology. There is published literature (Keir and Keir, 1983, Fischer & Romaine, 1990, Escher and Krueger, 2003) concerning the development of the foregone interest rate, particularly in and with relation to its treatment in federal cases. It appears that much of the debate stems from the misunderstanding of the rationale for applying interest. For instance, is interest applied to make the plaintiff whole, as previously mentioned, or is it to dis-incentivize the

¹ Many times referred to as Generally Accepted Accounting Principles (GAAP) profits

² Most lost profits cases are calculated before corporate tax expenses because most claims, should they be successful are taxed at the corporate level.

³ While federal cases allow the expert to determine the foregone interest rate, state cases rely on statutory state rates.

defendant from acting in a similar manner in the future? Experts who believe that the role of the court is to make the plaintiff whole tend to look toward the loss of opportunities of the plaintiff. The latter looks toward the borrowing costs of the defendant; almost as if the defendant was borrowing the value of losses experienced by the plaintiff. Various groups make arguments for using the return on the plaintiff's capital (Keir and Keir, 1983), plaintiff's cost of borrowing (Keir and Keir, 1983), defendant's cost of borrowing (*Amoco Cadiz*, 1992), return on a market index (*Gonsalves v. Straight Arrow Publishers Inc.*, 2002 Del. Ch.), risk free rate (Fischer & Romaine, 1990), cost-of-carry pricing model (Escher and Krueger, 2003), prime rate (*Amoco Cadiz*, 1992), and the list goes on.

The problem that arises from this approach rests on the assumptions that must be made regarding what percentage, if any, of a company's profits would have been distributed to shareholders in each of the historical years of claim. As way of example, if a company has an accrued before tax profit yet does not distribute the profit to the shareholders in a cash dividend, in one or a combination of the historical years of claim, then the plaintiff should not be afforded a loss of profit in those years, for the simple reason that no cash dividends were provided. It is assumed that the profits are reinvested in the company because of the anticipated future growth in the underlying value of the asset.

Financial and Economic Theory

In order to understand and address the proper application of lost profits and foregone interest, it is important to present the basic financial and economic theory of investing in equity related securities. First, financial and economic theory assumes that investors are rational and will allocate their scarce financial resources to the investment that provides them the most opportunity for gain, after factoring in various types of risk, such as equity risk, company size risk, industry risk, company specific risk, geographical risk, political risk, systemic risk and other related risk factors. The endless range of equity investments are typically valued on the ability of the company to provide periodic dividends, an increase in asset value, or a combination of the two. A company that is expected to provide increasing dividends and profits typically has a greater value than a company where the dividends or the profits are less. Similarly, a company that has a substantial profit and has a very high internal growth rate forecasted for its profits; a growth rate that exceeds most other investment opportunities for the investor will plow-back the profits into the future growth of the company. Essentially, in this case, the investor is not receiving dividends today, but rather anticipates a much greater value of the asset at a later date. Other companies where the internal growth rate of profits are lower than investment opportunities that an investor can acquire on her own, will more often choose to give back more of the profits in a form of a dividend when compared to a high growth company. (Miller, Modigliani, 1961)

Application

All things equal, assume there are two identical companies, Company A and Company B; and over three years Company A invests all of its yearly profits in product development anticipating greater levels of future sales, and Company B distributes all of its yearly profits to its shareholders, and re-invests nothing. At the end of the three-year period, Company A should, if successful in its strategy have a more valuable company with increasing sales, new differentiated products, and greater levels of profits when compared to Company B. In this scenario, the shareholder in Company A is rationalizing that all of the profits that were reinvested in the Company will increase the value of the underlying Company when compared to the shareholder in Company B who received all of its investment return in yearly cash dividends. Assumedly, based on the rational actor (Becker, 1976), the former is expecting an increase in the value of the company as an asset, and the latter is expecting a continued level of cash dividends to be invested elsewhere or used in the present.

Tables 1 and 2 below present the three-year forecasted financial operations of Company A and B, respectively. For purposes of this analysis, it is assumed all things are equal and that the only difference between the companies is that the future revenue growth rate of sales will be different. For Company A, assume that the Company will grow at 25.0% per year, mainly because the Company invests all of its yearly profits in future growth and provides no dividends to the shareholders, whereas Company B has a growth rate of 2.0%. Assume that each company maintains the same 22.0% pre-tax accrued profits over the period of time. For Company A there are no cash dividends provided to the shareholders but a substantial increase in sales, and an absolute increase in profits (\$83.88 million), where in Company B, there is limited sales growth, but \$67.33 million paid out in yearly dividends.

Table 1
Company A Summary Financial Statements (millions)

	Year 1	Year 2	Year 3	Total
Sales	\$100.00	\$125.00	\$156.25	\$381.25
Expenses (-)	78.00	97.50	121.88	297.38
Pre Tax Profits (=)	22.00	27.50	34.38	83.88
Cash Dividends	--	--	--	--
Dividend Payout Ratio	0.0%	0.0%	0.0%	0.0%

Table 2
Company B Summary Financial Statements (millions)

	Year 1	Year 2	Year 3	Total
Sales	\$100.00	\$102.00	\$104.00	\$306.00
Expenses (-)	78.00	79.56	81.15	238.71
Pre Tax Profits (=)	22.00	22.44	22.89	67.33
Cash Dividends	22.00	22.44	22.89	67.33
Dividend Payout Ratio	100.0%	100.0%	100.0%	100.0%

Now assume that the above were not realized due to an alleged misappropriation of trade secrets by a competitor, which caused harm to Companies A and B. To alleviate the complexity of timing, assume that the misappropriation occurred on the last day of year zero (not shown), and that the damages began on day 1, year 1 and end on the last day of year 3. Table 3 below presents Company A's impaired revenue growth at 12.5%, or half of its revenue growth prior to the misappropriation, and continues to achieve a pre-tax income margin of 22.0%. Further, assume that Company A mitigates its lost revenue and profits by decreasing its expenses. Also accept that Company A will have a higher growth rate than Company B, for the simple reason that Company A is reinvesting all of its profits, although less than originally forecasted. Company B shows no revenue growth, but continues to achieve a pre-tax profit margin of 22.0%. Like Company A, assume that the Company will mitigate its damages by decreasing its expenses. Tables 3 and 4 (below) provide the actual results of Company A and Company B.

Table 3
Company A Actual Financial Statements (millions)

	Year 1	Year 2	Year 3	Total
Sales	\$95.00	\$106.88	\$120.23	\$322.11
Expenses (-)	74.10	83.36	93.78	251.25
Pre Tax Profits (=)	20.90	23.51	26.45	70.86
Cash Dividends	--	--	--	--
Dividend Payout Ratio	0.0%	0.0%	0.0%	0.0%

Table 4
Company B Actual Financial Statements (millions)

	Year 1	Year 2	Year 3	Total
Sales	\$95.00	\$95.00	\$95.00	\$285.00
Expenses (-)	74.10	74.10	74.10	222.30
Pre Tax Profits (=)	20.90	20.90	20.90	62.70
Cash Dividends	20.90	20.90	20.90	62.70
Dividend Payout Ratio	100.0%	100.0%	100.0%	100.0%

Tables 5 and 6 below present the calculated lost profits and cash dividends to Companies A and B. Assuming the same before-tax net profit margin of 22.0% for both companies, Company A has a greater profit as a result of higher projected revenue. As shown, Company A has \$13.0 in lost profits with no dividends paid, and Company B has \$4.63 in lost profits and \$4.63 in lost dividends. Also note that the loss in revenue for Company A is much greater than the loss to Company B, for the simple reason that Company A would have been plowing back 100.0% of its pre-tax profit each year into new product and sales initiatives, as previously noted.

Table 5
Company A Calculated Damages (millions)

	Year 1	Year 2	Year 3	Total
Sales	\$5.00	\$18.13	\$36.02	\$59.14
Expenses	3.90	14.14	28.09	46.13
Pre Tax Income (Profits)	1.10	3.99	7.92	13.01
Cash Dividends	--	--	--	--

Table 6
Company B Calculated Damages (millions)

	Year 1	Year 2	Year 3	Total
Sales	\$5.00	\$7.00	\$9.04	\$21.04
Expenses	3.90	5.46	7.05	16.41
Pre Tax Income (Profits)	1.10	1.54	1.99	4.63
Cash Dividends	1.10	1.54	1.99	4.63

In both of these scenarios, we have to ask ourselves the very serious and often overlooked question, “*What have the shareholders lost?*” It is probably easier to look toward Company B first. The shareholders of Company B have lost \$4.63 million dollars in cash dividends. In many lost profit cases, the expert would simply apply the foregone interest rate to the lost dividends in each of the years, and provide the sum of the lost interest to the court. This would not be entirely wrong.

The shareholders of Company A, on the other hand, have a loss in profits but no loss in dividends. The major question here relates to what should the foregone interest rate be applied to for Company A. *Should it be applied to the accrued lost profits, even though there were no projected dividends?* As I will explain later, the simple answer is that foregone interest should not be applied to accrued lost profits, when in fact the company has no dividends. Unfortunately, in many cases the expert calculates the loss to the company based upon lost profits and spends little to no time analyzing the cash dividends paid. When preparing lost profits analysis using accrued profits exclusively and overlooking cash dividends, the expert prepares calculations that are misleading at best, and possibly an egregious financial oversight at worst, where the latter has the potential to call into the question the entire expert report.

Pre-allegation

In the case of Company A, had the expert applied foregone interest to the accrued based profits and if he did not use actual cash dividends as the loss, he would be putting the plaintiff in a situation better than he would have been, had it not been for the misappropriation.

To present the inequities in the scenarios, the equity value (the total amount paid for the investment or the total amount invested to start the company) of the investment in year 0 is provided and compared to the value at the end of year three. Assume each company was purchased in year 0 at one (1) times 12-month forward sales, or \$100.0 million. Now assume at the end of the third year, Company A would have sales of \$156.25, with an anticipated growth rate of 25.0% and an enterprise value of \$195.31 ($\$156.25 \times 1.25 \times 1$), and Company B would have sales of \$104.04, with a growth rate of 2.0%, and an enterprise value of \$106.12 ($\$104.04 \times 1.02 \times 1$). Companies A and B, would have an absolute gain on the investment of 95.31% and 6.12%, respectively and a 25.0% and 2.0% yearly compounded growth rate on their investment from year 1. Company A's equity value in year 3 would be greater than Company B's equity value by \$89.19 million ($\$195.31 - \106.12). Though, after we add in Company B's dividends of \$67.33, the \$89.19 additional gain to Company A is reduced to \$21.86 million ($\$89.19 - \67.33). The greater value of Company A is representative of the increased dividends being plowed back into the company.

Preliminary Post-allegations for Company B

After the alleged misappropriation, the enterprise values of Companies A and B decrease to \$135.26 ($120.23 \times 1.25 \times 1.0$) and \$96.90 ($95 \times 1.02 \times 1.0$) million dollars, respectively. The value of Company A decreases by \$60.05 ($\$195.31 - \135.26) million and the value of

Company B decreases by \$11.2 million. Based on the above scenario, it would be prudent to apply foregone interest to the lost profits of Company B because the company was distributing all of its profits as dividends. Assume a foregone interest rate of 10.0%, applied in a compounded interest calculation to the lost dividends of Company B. The lost profits and foregone interest to Company B (shown in Table 7) is calculated to be \$4.63 million (assuming the end of year method).

Table 7
Lost dividends (D) and foregone interest to Company B

	Year 1	Year 2	Year 3	Total
Lost Dividends (D)	\$1.10	\$1.54	\$1.99	\$4.63
Foregone Interest [$=D \times (1+10\%)^{\text{time}} - D$]	0.23	0.15	0.00	0.39
Total Loss	1.33	1.69	1.99	5.01

Preliminary Post-allegations for Company A

As suggested earlier, many experts would simply apply foregone interest to Company A based on lost profits while not considering the impact of reinvestment. Should this error occur the shareholders in Company A would have the following lost profits and foregone interest. Table 8 provides the lost profits and foregone interest to Company A, assuming a 10.0% foregone interest rate. The loss of profits and foregone interest would be \$13.64 or an \$8.63 million greater loss than Company B. *So, where is the problem that concerns us?*

Table 8
Lost profits (P) and foregone interest to Company A (millions)

	Year 1	Year 2	Year 3	Total
Lost Profits (P)	\$1.10	\$3.99	\$7.92	\$13.01
Foregone Interest [$=P \times (1+10\%)^{\text{time}} - P$]	0.23	0.40	0.00	.63
Total Loss	1.33	4.39	7.92	13.64

Explained above, Company A should have an equity value much greater than Company B, as a result of plowing back its dividends. In this scenario, Company A should not receive the additional \$0.63 million in foregone interest since the increase in the equity value of the Company represents a return on unpaid dividends. In this case, the yearly return on the investments exceeds foregone interest. A note of caution: considering the scenario presented here is only three years, the difference in interest between the two

companies will not be very large. However, for many lost profits cases where the case has been in the system for many years, the foregone interest can be larger than the actual damage award.

Comparing the total losses, including equity loss

Assuming the expert does not decipher between profits and dividends and includes foregone interest on lost profits for Company A and dividends for Company B, and assuming a loss of equity value for both companies, the total loss is calculated in Table 9. Table 9 provides a summary of total damages should the expert apply foregone interest to lost profits. While how to treat the foregone interest on the loss of equity value has not been discussed, the following table shows that the overall loss between the two companies is drastically different with Company A having a total loss of value of \$73.69 million, and Company B having a total loss of \$16.13 million. The major difference in the losses is attributable to differences in equity value, with Company A gaining most of its increase in value from the reinvested dividends and ensuring higher internal growth rate. Because the interest on the investment in Company A is already included in the pre-allegation profit forecast, applying foregone interest to the accrued profits would be providing a benefit to the plaintiff, which would put them in a position that is better than what they would have earned, had it not been for the alleged misappropriation. Similarly, by not providing an equity loss of value for Company B would short change the plaintiff of the total loss she experienced.

Table 9
Total Loss with the miscalculation of foregone interest for Company A
(millions)

Component of Loss	Company A	Company B
Loss of Dividends	--	\$4.63
Loss of Profits	13.01	--
Foregone Interest	.63	0.39
Loss pre-Equity Value	13.64	5.01
Loss of Equity Value	60.05	11.12
Total Loss	\$73.69	\$16.13

In this case, the expert should consider foregoing the calculation of lost interest and the lost profits and subsequently turn to the loss of equity value when analyzing Company A. When the role of the court is to make the plaintiff whole and when the plaintiff's company provides no dividends, in theory, the plaintiff should only receive the loss of equity value. Let us analyze the change in equity value for both Company A and B, over the three year period of loss. Again, assuming that the value methodology used to calculate the value for each company is the market approach, with a 1.0 times forward price-to-sales metric. Note that this method is used for the simplicity of it, but in reality

the choice of methodology may be complex. Table 10 provides a summary of the value in each of the three years.

Table 10
Equity Value – Three Year Look (millions)

	Year 1	Year 2	Year 3
Company A Value (before damage)	\$125.00	\$156.25	\$195.31
Company A Value (after damage)	106.88	120.23	135.26
Difference in Value	18.13	36.02	60.05
Company B Value (before damage)	\$102.00	\$104.04	\$106.12
Company B Value (after damage)	95.00	95.00	95.00
Difference in Value	7.00	9.04	11.12

Toward a Comprehensive Calculation

It is important to consider the loss in equity value in each of the historical years of claim. Assume that the shareholders in Company A were to have sold their shares on the last day in Year 1, the value received would have been \$18.13 million higher than what was actually received had it not been for the allegations. Following this through, the shareholders would have had the opportunity to invest the lost proceeds in a bank or elsewhere for two years. If the investors were to sell in year 2, they would have had the opportunity to invest the \$36.02 million loss of value in the bank or elsewhere for 1 year. Unfortunately, due to the allegations, the value of the loss in the company may never be recaptured, and the plaintiff should be entitled to receive compensation on the loss of equity value. In essence, the loss of value represents the return on the investment from the plow back of the profits. *How do we calculate the loss?* Considering the pre-allegation growth rate already includes reinvested dividends and also includes a higher internal rate of return on its investment, and when factoring in the difference between the pre-allegation value and the post-allegation value, the plaintiff is in essence receiving the full value of its equity loss, including lost interest at the end of year 3. The total loss of enterprise value to Company A is \$60.05 million and should not be further modified. This already includes the loss of dividends and the loss of interest on the dividends.

Now, let us consider Company B. As explained earlier, the expert would not be wrong in including foregone interest on the lost dividends for Company B. *But what about the loss in enterprise value?* With relation to Company B, the shareholders would have an enterprise value of approximately \$11.12 million dollars less than they would have, had it not been for the allegations. The loss of enterprise value for Company B is mainly attributed to the meager 2.0% yearly growth rate, assumed to be associated with the

increase in real prices because there was no reinvestment of profits. Table 11 below summarizes the proper treatment for the misappropriation of trade secrets for Company A and Company B. In summary, Company A should not be compensated for lost profits or foregone interest because the values of these two components of loss are already captured in the value of the company in year 3. Company B should be compensated for lost profits and foregone interest on these profits because they were actually forecasted to be paid. Also, there is a change in the equity value of Company B that should also be considered as a component of loss.

Table 11
Comprehensive Treatment of Loss (millions)

Component of Loss	Company A	Company B
Loss of Dividends	--	\$4.63
Loss of Profits	--	--
Foregone Interest	--	0.39
Loss pre-Equity Value	--	5.01
Loss of Equity Value	60.05	11.12
Total Loss	\$60.05	\$16.13

Summary and Further Considerations

Many experts rely on accrued profits when calculating lost profits in commercial damage cases. Subsequently many of these same experts apply foregone interest to the accrued lost profits and because of this fail to properly calculate and or recognize many of the shortcomings in their analysis. This paper highlights a few problems with the calculation of lost profits, the application of foregone interest to lost profits, and that under certain circumstances there can be a loss of enterprise value coupled with a loss of profits and foregone interest. First, it was explained that when experts use accrual based (GAAP based) lost profits and do not use cash based dividends, they will in many respects fail to properly calculate lost profits. As shown here, assuming lost accrued profits as the variable of loss, the expert would have calculated total damages (not factoring in equity value loss) of \$13.64 million and \$5.01 million, for Company A and B, respectively. However, it is shown here that Company A has no lost profits because of no distributed dividends and therefore no lost interest. Similarly, it is shown that both companies are harmed by only factoring in lost profits and foregone interest, for the simple reason that many times a misappropriation of trade secrets or tort related violations may cause irreparable harm to the value of the underlying equity investment, and so the court should look toward a more comprehensive value approach.

The expert should consider analyzing, understanding and communicating to the court the possible damage to the enterprise value of the company, plus the possible damage in

lost dividends and interest. By not providing such detail, both the plaintiff and defendant are not receiving the comprehensive view of damages – thus further distorting the damages stemming from the misappropriation. In total, when experts analyze a company with no dividends, they should forego the calculation of lost profits and lost interest and turn to the calculation of lost enterprise value during the period of loss. The following equation may assist the expert in calculating comprehensive commercial damage losses when lost profits are considered a primary measure of loss. The following denotes the equation variables:

$$L = \sum((FD_{t+n} - AD_{t+n}) * (1+r)^{p-t}) + ((FV_y - AV_y))$$

- *L* = Loss (represents the total loss including profits, interest and value)
- *FD* = Forecasted dividend (forecasted dividend paid prior to allegations)
- *AD* = Actual dividend paid
- *FV* = Forecasted value (forecasted value of the Company at the end of the historical loss period)
- *AV* = Actual value of the Company at the end of the loss period
- *R* = Foregone interest rate
- *t* = Year of the loss claim
- *p* = Number of years for loss claim
- *n* = Number of future years
- *y* = Final year of loss

When analyzing a company that experienced historical lost profits, the expert should consider lost dividends, lost interest on the dividends as well as potential damage in the underlying equity investment. The comprehensive calculation of damages expressed here includes calculating economic losses using a lost profits method, as well as a valuation method. The added component of equity loss would demand a valuation engagement in many lost profits cases and so experts should consider their skill set when considering adopting this comprehensive approach to valuing economic loss.

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