Source and Timing Analysis of Differences Between Financial and Tax Accounting: Evidence from Electric Power Companies in Armenia

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Ֆինանսական և հարկային հաշվառման տարբերությունների աղբյուրային և ժամանակային վերլուծությունը ՀՀ էլեկտրաէներգետիկական կազմակերպություններում

Սերոբյան Անի Ա.
Դասախոս, Ֆինանսական հաշվառման ամբիոն,
Հաշվապահական հաշվառման և աուդիտի ֆակուլտետ,
Հայաստանի պետական տնտեսագիտական համալսարան (Երևան, ՀՀ)

Ամփոփագիր. Հոդվածում մշակվել է ֆինանսական և հարկային հաշվառման տարբերություններն ըստ աղբյուրների և ըստ ժամանակի վերլուծելու մոտեցում: Վերլուծվել է ՀՀ էլեկտրաէներգետիկական երեք կազմակերպությունների 2016–2025 թթ. տվյալներով: Այդ կազմակերպություններն են «Երևանի ՋԷԿ» ՓԲԸ-ն, «Հայկական ատոմային էլեկտրակայան» ՓԲԸ-ն և «Բարձրավոլտ էլեկտրացանցեր» ՓԲԸ-ն: Հետազոտությունը կառուցված է որպես երկայնական համեմատական բազմակի դեպքի ուսումնասիրություն: Շահույթի մակարդակում հաշվապահական և հարկային արդյունքների տարբերությունը դիտարկվում է հաշվեկշռային ժամանակավոր տարբերություններից առանձին: Բացի այդ, տարբերության աղբյուրը տարանջատվում է այն գործոնից, որը ժամանակի ընթացքում փոփոխում է դրա մեծությունը: Առաջարկվում է նաև ընթացիկ տարվա ֆինանսահարկային տարբերությունը չափել մինչև նախորդ տարիներից փոխանցված հարկային վնասների հաշվանցումը: Արդյունքում ստացվում է երկու ցուցանիշ՝ BTD^o և BTD^R: 30 կազմակերպություն-տարի դիտարկումներից 8-ում այդ տարանջատումը փոխում է BTD-ի նշանը: Հիմնական միջոցների վերաբերյալ արդյունքները բացահայտում են երեք տարբեր պրոֆիլ: ԲԷՑ-ում ակտիվային բազան մոտավորապես կրկնապատկվում է, և դրա հետ աճում է հետաձգված հարկային հետևանքը: ՀԱԷԿ-ում ակտիվային բազան նույնպես աճում է, սակայն հետաձգված հարկային հետևանքը կտրուկ նվազում է: Երևանի ՋԷԿ-ում երկու ցուցանիշն էլ միասին կրճատվում են: Արդյունքներր ցույց են տալիս, որ ֆինանսահարկային տարբերությունները պետք է գնահատել ոչ միայն ըստ մեծության, այլև ըստ դրանց աղբյուրների, ժամանակաշրջաններին վերագրման և շարժի կառուցվածքի:
Հանգուցաբառեր և բառակապակցություններ՝ ֆինանսական հաշվառում, հարկային հաշվառում, հաշվապահական և հարկվող շահույթների տարբերություններ, ժամանակավոր տարբերություններ, հետաձգված հարկ, հարկային վնասներ, հիմնական միջոցներ, էլեկտրաէներգետիկա

Анализ источников и временной структуры различий между финансовым и налоговым учетом в электроэнергетических организациях Республики Армения

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Аннотация. В статье предложен подход к анализу различий между финансовым и налоговым учетом с точки зрения их источников и распределения во времени. Подход проверен на данных за 2016–2025 гг. трех электроэнергетических компаний Армении: ЗАО «Ереванская ТЭЦ», ЗАО «Армянская атомная электростанция» и ЗАО «Высоковольтные электросети». Исследование построено как лонгитюдное сравнительное исследование нескольких случаев. Разница между бухгалтерским и налоговым результатом на уровне прибыли рассматривается отдельно от балансовых временных разниц. Кроме того, источник различия отделяется от фактора, который изменяет его величину с течением времени. Также предлагается измерять разницу текущего года до зачета налоговых убытков, перенесенных с прошлых лет. В результате получаются два показателя:

BTD^0 и BTD^R. В 8 из 30 наблюдений «компания-год» такое разделение меняет знак BTD. По основным средствам выявлены три разных профиля. В ВЭС база активов увеличивается примерно вдвое, и вместе с ней растет отложенный налоговый эффект. В ААЭС база активов тоже растет, но отложенный налоговый эффект резко снижается. В Ереванской ТЭЦ сокращаются оба показателя. Результаты показывают, что расхождения между бухгалтерской и налоговой прибылью нужно оценивать не только по их величине. Важны также их источники, отнесение к периодам и структура их движения.
Ключевые слова и словосочетания: финансовый учет, налоговый учет, разницы между бухгалтерской и налоговой прибылью, временные разницы, отложенный налог, налоговые убытки, основные средства, электроэнергетика

Introduction

In the accounting literature, the gap between financial reporting and tax accounting results is treated as several things at once: a product of accounting measurement, a consequence of tax rules, and a carrier of information about what is going on inside the business. The total size of that gap, however, tells us fairly little on its own. Without knowing what produced it, which part relates to the current period and which part is really a tax effect carried over from earlier years, the number is hard to interpret. The problem is sharper in capital-intensive industries, where the accounting and tax measurement of long-lived assets can follow quite different timelines.

Gil Manzon and George Plesko showed that the difference between book and taxable income is driven by a number of predictable factors, and that estimating taxable income indirectly from financial statements has serious limitations [**6**]. Michelle Hanlon links large book-tax differences to additional information about how persistent earnings are [**7**], while Baruch Lev and Doron Nissim find that the ratio of taxable to book income carries information about future earnings [**8**]. At the same time, the broader review literature warns that a large BTD should not be read automatically as a sign of aggressive tax planning or of accounting error [**10**].

Research on deferred taxes points in the same direction: away from aggregate figures and towards a breakdown by source. A systematic review by Anna Görlitz and Michael Dobler shows that only a relatively small share of empirical deferred-tax studies decompose the measures by source [**11**]. Astrid Chludek's results indicate that a large part of deferred tax balances can stay on the balance sheet for a long time, while the aggregate balance by itself hides the underlying flows of origination and reversal [**12**].

The aim of this paper is to assess how differences between financial and tax accounting behave, in terms of their sources and over time, using three companies from Armenia's electric power sector. The methodological contribution lies in combining four related steps. First, we use actual tax return data rather than estimating taxable income indirectly. Second, we keep the profit-level BTD separate from balance-sheet temporary differences. Third, we strip the effect of prior-year tax losses out of the current-year BTD. Fourth, we analyse the sources of the differences separately from the factors that drive their movement.

The rest of the paper is organised as follows. Section 1 reviews the relevant literature and sets out the hypotheses. Section 2 describes the research design, the data and the measurement framework. Section 3 reports the empirical results, Section 4 discusses them against the hypotheses, and the final section concludes.

1. Literature Review and Research Positioning

1.1. Two measurement systems and the gap between them

Much of the difficulty in studying differences between book and taxable income comes from the fact that the two measurement systems were built for different purposes. Financial reporting is meant to show the economic position and performance of the entity, whereas the tax computation follows the rules that define the tax base. The timing of recognition or the basis of measurement for the same transaction can therefore differ, without either system being “wrong”. Shackelford and Shevlin's classic review frames tax accounting research precisely around this interaction between financial reporting and taxation [**13**], and later reviews by Hanlon and Heitzman [**10**] and by Graham, Raedy and Shackelford [**26**] trace how the field has grown out of that starting point.

A practical consequence of this separation is that outsiders rarely see taxable income directly. Most studies infer it from the current tax expense reported in the financial statements. Hanlon shows that this approach is noisy: tax loss carryforwards, the treatment of employee stock options, differences in consolidation scope and the accounting for tax contingencies can all drive a wedge between the inferred figure and the amount actually reported to the tax authority [**20**]. Mills, one of the few early studies to use confidential tax return data, found that larger book-tax differences were associated with larger subsequent audit adjustments by the tax authority [**19**]. Both studies suggest that the quality of a BTD measure depends heavily on whether the tax side comes from the tax return itself.

The degree of conformity between the two systems also matters. Hanlon, Maydew and Shevlin examine firms that were forced to move closer to book-tax conformity and report a noticeable loss in the informativeness of their earnings [**24**]. Using cross-country data, Atwood, Drake and Myers find that where tax rules require greater conformity, earnings are less persistent and less closely tied to future cash flows [**25**]. Put differently, the gap between the two systems is not simply noise to be removed; it carries information that would be lost if the systems were merged.

1.2. Book-tax differences as a signal

A large stream of research uses the BTD as an indicator of earnings quality, tax planning or the information environment, but its reading always depends on what the difference is made of [**7**; **10**; **14**]. Hanlon reports that firms with large book-tax differences, whether positive or negative, have less persistent earnings, and that investors appear to price this [7]. Lev and Nissim show that the tax-to-book income ratio helps predict earnings growth [8]. Phillips, Pincus and Rego find that deferred tax expense adds to the ability of accrual measures to detect earnings management aimed at avoiding losses or earnings declines [**9**], and Dhaliwal, Gleason and Mills document that firms adjust the tax expense late in the year to meet analysts' forecasts [**33**].

A second strand treats the BTD as a proxy for tax avoidance. Desai and Dharmapala use the part of the BTD not explained by total accruals to capture tax sheltering and relate it to managerial incentive pay [**21**]. Frank, Lynch and Rego find that aggressive tax reporting and aggressive financial reporting tend to go together [**22**]. Tang and Firth, working with Chinese data, split the BTD into normal and abnormal components and show that the abnormal part reflects both earnings management and tax management [**14**]. Blaylock, Shevlin and Wilson make the point most directly: large positive temporary differences mean different things depending on whether they arise from upward earnings management or from tax avoidance, and earnings persistence differs accordingly [**23**].

The common lesson of this literature is that the same total BTD may stem from very different mechanisms. Hanlon and Heitzman caution against treating a large BTD as evidence of aggressiveness or error in itself [**10**]. This is the main reason why the present study focuses on sources rather than on totals.

1.3. Deferred taxes: recognition, persistence and reversal

IAS 12 Income Taxes takes a balance-sheet approach. A temporary difference is defined as the difference between the carrying amount of an asset or liability and its tax base, and a deferred tax asset (DTA) or deferred tax liability (DTL) is recognised when the standard's conditions are met [**1**]. The disclosure requirements also call for a numerical reconciliation between tax expense and accounting profit, together with information on temporary differences and unused tax losses by source [**1**]. The profit-level BTD and the balance-sheet temporary difference are therefore related, but they are not the same measure.

How these balances should be interpreted has long been debated. Givoly and Hayn, looking at stock price reactions around the 1986 US tax reform, conclude that investors treat the deferred tax liability as a real liability, but discount it according to how likely and how soon it is to be settled [27]. Guenther and Sansing show analytically that the valuation consequences of deferred tax balances depend on the nature of the underlying temporary difference and the pattern of its reversal, not on the reported balance alone [**28**]. Laux provides evidence that both deferred tax assets and deferred tax liabilities are associated with future tax payments, i.e. the balances do eventually turn into cash [29]. By contrast, Chludek finds that under IFRS a large portion of deferred tax liabilities does not reverse within a foreseeable horizon [**12**]. Poterba, Rao and Seidman add that the composition of firms' deferred tax positions determines how a change in the statutory tax rate feeds through to reported earnings, and therefore shapes firms' incentives around tax reforms [30].

These studies differ in their conclusions, but they share one feature: the aggregate deferred tax balance turns out to be a poor guide to what is actually happening. Görlitz and Dobler's systematic review confirms that relatively few empirical studies break deferred taxes down by source [**11**]. A net balance that looks stable can conceal new differences arising in one category while older ones reverse in another.

1.4. Tax losses and the timing problem

Manzon and Plesko relate changes in the BTD to profitability, net operating losses, investment and financing decisions and other factors, and stress that reconstructing taxable income from book income is especially sensitive to losses and special tax rules [**6**]. Hanlon makes a similar point about loss carryforwards when she discusses the limits of inferring taxable income from financial statements [**20**]. Auerbach and Poterba showed early on that firms with unused losses face quite different effective tax incentives from fully taxable firms [**31**], and losses are also used unevenly over time: Cooper and Knittel show that a large share of corporate tax losses is either used with a considerable delay or never used at all [**32**].

This matters for the present study because, in all three companies, the use of tax losses from earlier years often affects the final tax result. Under the Tax Code of the Republic of Armenia, the deduction of tax losses is subject to time limits, which makes their effect a separate object of timing analysis [**2**]. The final result shown in the profit tax return and the tax result generated by the current year's operations therefore have to be kept apart. To our knowledge, the BTD literature rarely makes this separation explicitly, and empirical studies that rely on the current tax expense cannot make it at all.

1.5. Research gap, position and hypotheses

Three gaps follow from the review. First, most BTD studies work with large samples and estimated taxable income, so source-level and timing-level detail is lost. Second, the profit-level BTD and the balance-sheet temporary difference are often used interchangeably, although they measure different things. Third, the effect of tax losses carried forward is usually folded into the current-year gap. Evidence from transition and emerging economies, and from regulated, capital-intensive sectors such as electric power, is also scarce.

This paper takes the following position. The BTD is treated as a flow difference for the reporting period, while a temporary difference is a stock measure on the balance sheet at the reporting date. A tax loss from earlier years is not a temporary difference in itself, although carrying it forward may justify recognising a deferred tax asset if the IAS 12 conditions are met [**1**]. This distinction prevents tax losses and asset- or liability-based temporary differences from being lumped together mechanically.

Based on this framework, we test the following hypotheses:

H1(a): The differences between financial and tax accounting at Yerevan TPP, ANPP and HVEN differ in their source structure.

H1(b): The size, direction and source composition of these differences follow firm-specific patterns over time.

H2: For property, plant and equipment, a persistent temporary-difference balance can be accompanied by the simultaneous origination of new differences and the reversal of earlier ones, so that asset growth and DTL growth need not move together.

2. Research Methodology and Data

The study is designed as a longitudinal comparative multiple-case study. In Robert Yin's approach, multiple cases are selected according to replication logic rather than statistical sampling: individual cases may show similar results or results that differ in predictable ways [**3**]. Kathleen Eisenhardt emphasises combining within-case and cross-case analysis and keeping theoretical claims closely tied to the evidence [**4**]. Eisenhardt and Melissa Graebner later add that each case can be treated as a separate unit of analysis whose findings are then compared with the other cases through replication logic [**5**].

Following this logic, we selected Yerevan Thermal Power Plant CJSC, Armenian Nuclear Power Plant CJSC and High Voltage Electric Networks CJSC. The aim was not to build a statistically representative sample of the sector. The three companies operate under the same jurisdiction and the same general financial reporting framework, but represent technologically different cases: thermal generation, nuclear generation and high-voltage transmission. This structure lets us ask how far the source composition and timing of book-tax differences are company-specific when the regulatory environment is shared.

The ten-year window (2016–2025) was chosen so that the movement of long-lived assets and carried-forward tax effects could be observed. The period also covers changes in Armenian tax regulation, so every firm-year observation is interpreted against the legal basis in force at the time. The Tax Code sets minimum useful lives by asset group for tax depreciation of fixed assets, together with related tax rules, and these may differ from the useful lives used in financial reporting [**2**]. The deduction of tax losses is also time-limited, which makes their effect a separate subject of timing analysis [**2**].

The data set comprises the companies' audited annual financial statements, the notes on income tax and deferred taxes, and the profit tax returns that were available for the study. The financial statements are publicly available on the companies' official websites [**15**–**17**]. Wherever possible, taxable income was taken directly from the profit tax return [**18**] rather than backed out of the current tax expense in the financial statements. This reduces the measurement error that can arise from prior-year adjustments, the use of tax losses or other tax components.

Table 1. *Rationale for the selection of the companies studied*

Criterion	Yerevan TPP	ANPP	HVEN	Relevance for the study
Main activity	Generation of electricity and heat	Generation of electricity	Transmission of electricity	Brings generation and transmission cases together

Criterion	Yerevan TPP	ANPP	HVEN	Relevance for the study
Technological setting	Thermal, combined-cycle	Nuclear	High-voltage grid	The same book-tax question studied under different technological conditions
Long-lived assets	Power units and auxiliary equipment	Special-purpose production assets	Transmission lines and substations	Compares fixed assets with different economic content
Methodological role of the case	Thermal generation case	Technologically distinct generation case	Contrasting infrastructure case	Combines within-case and cross-case analysis

Source: compiled by the author.

2.1. Levels of analysis and the calculation framework

Differences between financial and tax results are assessed at two levels that are linked but should not be treated as the same. At the profit level, profit or loss before tax is compared with the tax result. At the balance-sheet level, the carrying amount of an asset or liability is compared with its tax base. The distinction matters because the presence of a particular deferred tax asset or liability confirms the tax effect of a balance-sheet temporary difference, but does not by itself prove that the same source produced a BTD of the same size in that year.

The starting relationship at the profit level can be written as:

$$BTD^{R}_{c,t} = PBT_{c,t} - TI^{R}_{c,t} , (1)$$

where PBT is profit or loss before tax and TI^{R} is the final tax result reported in the profit tax return. The final tax result, however, may already include the use of tax losses carried forward from earlier years. That amount is not a new difference between financial and tax recognition arising in the current year. We therefore define the tax result before offsetting prior-year tax losses:

$$TI^{o}_{c,t} = TI^{R}_{c,t} + LU_{c,t} , (2)$$

$$BTD^{o}_{c,t} = PBT_{c,t} - TI^{o}_{c,t} , (3)$$

$$BTD^{R}_{c,t} = BTD^{o}_{c,t} + LU_{c,t} . (4)$$

Here LU is the amount of prior-year tax losses used in the given year. BTD^{o} captures the difference between the financial and tax results of the reporting year before the carried-forward loss is applied, while BTD^{R} measures the difference relative to the final tax result. Comparing the two keeps tax effects that built up in earlier periods from being attributed to the current year's operations.

At the balance-sheet level, the temporary difference is determined in line with the IAS 12 definition:

$$TD_{i,t} = CA_{i,t} - TB_{i,t} , (5)$$

where CA is the carrying amount of the asset or liability and TB is its tax base. This relationship is the basis for recognising a DTA or DTL, but it should not be mechanically equated with the profit-level BTD [**1**].

2.2. Identifying sources and separating driving factors

In this study, a *source* of difference is any item of income, expense, asset, liability or tax adjustment whose financial and tax recognition or measurement differ, thereby producing a book-tax gap. A *factor*, by contrast, is the economic or accounting process that changes the size or direction of that source over time. For example, the difference between the carrying amount and the tax base of fixed assets is a source of temporary difference, whereas additions, book and tax depreciation, impairment, disposals, revaluations and other adjustments are the factors that drive its movement.

Sources were identified using a hierarchy of documentary evidence. Items are classed as *directly identified* when their financial and tax effects are disclosed separately or can be matched directly. Sources are classed as *identified through reconciliation* when their financial and tax effects appear in different notes but the link can be reconstructed by cross-checking the documents. If an item is present but its separate tax effect cannot be quantified from the published data, it is treated as a possible but unquantified source. Any unexplained difference is not assigned to a source by assumption.

This rule allows the total BTD to be presented without creating an artificial residual category. If the financial result is expressed as the sum of financial income and expenses, and the tax result as the sum of their tax equivalents, BTD^{o} structurally reflects the differences between the financial and tax measurement of income and expenses. Published disclosures, however, do not always allow every component to be quantified, so numerical attribution to sources is made only to the extent supported by the documents.

3. Empirical Results

3.1. Source structure of the differences

The documentary analysis shows that the source structures of the three companies overlap only partly. At the profit level, the tax reconciliations of all three companies include the effects of non-taxable income and non-deductible expenses, but the net effect varies in direction and

size from year to year. The use of prior-year tax losses is also common, but it is classified as a tax effect carried over from an earlier period, not as a source of new BTD in the current year.

At the balance-sheet level, the taxable temporary difference related to fixed assets is a source shared by all three companies. ANPP also separately discloses deferred tax effects related to inventories, trade and other payables, asset-related grants and tax losses. HVEN discloses sources related to inventories, payables, asset-related grants, tax losses carried forward, fixed and intangible assets, and loans and borrowings. At Yerevan TPP, the breakdown by source is more limited for some items. This difference is a finding in its own right, since the depth of public disclosure also affects how far book-tax differences can be analysed.

Table 2. *Comparison of the main sources actually identified*

Source	ANPP	HVEN	Yerevan TPP
Property, plant and equipment	DTL disclosed separately	Combined DTL for fixed and intangible assets	DTL present throughout the period
Inventories	DTA disclosed separately	DTA disclosed separately	Separate tax effect not always disclosed
Payables	Separate effect	Separate effect within DTA	Limited breakdown by source
Asset-related grants	Present in some years	Present in some years	Separate effect is limited
Loans and borrowings	Not disclosed as a separate source	Separate DTL source	Not disclosed as a separate source
Use of prior-year tax losses	Carried-forward tax effect	Carried-forward tax effect	Carried-forward tax effect

Source: compiled by the author from the companies' financial statements and profit tax returns.

3.2. Timing of the BTD and the effect of tax losses

The ten-year BTD^{o} series shows that the gap between financial and tax results does not behave in the same way across the three companies. At ANPP, BTD^{o} is negative in eight out of ten years and positive only in 2021–2022. At HVEN, negative values in 2017–2020 are followed by large positive values in 2021–2022, after which the direction changes again. Yerevan TPP shows the most volatile pattern: a large positive difference in 2016 is followed by negative values in 2017–2020, and from 2021 BTD^{o} returns to positive territory.

Table 3. *BTD^{o} dynamics, 2016–2025, AMD thousand*

Year	ANPP	HVEN	Yerevan TPP
2016	−6,860,331	684,442	16,950,745
2017	−8,534,793	−4,705,909	−15,485,710
2018	−2,819,446	−2,432,867	−4,855,794
2019	−2,773,418	−2,338,579	−3,491,731
2020	−10,154,429	−13,512,602	−16,088,578
2021	4,285,698	21,956,559	20,604,603
2022	10,238,281	21,218,034	28,404,468
2023	−2,851,362	−1,002,634	2,090,902
2024	−940,454	5,778,901	7,405,937
2025	−7,406,141	−265,378	1,956,041

Source: author's calculations based on the financial statements and profit tax returns. Figures are rounded to the nearest thousand AMD.

One of the most telling results is the difference in sign between BTD^{o} and BTD^{R}. In 8 of the 30 firm-year observations the two measures have opposite signs: at ANPP in 2023–2025, at HVEN in 2023 and 2025, and at Yerevan TPP in 2017–2019. In other words, in 26.7% of the observations, failing to separate out the effect of prior-year tax losses could have changed not only the size of the difference but also the economic reading of its direction.

Take ANPP in 2023. Measured against the final tax result, BTD^{R} was +8,607,152.925 thousand AMD, but once the use of prior-year tax losses is removed, BTD^{o} comes to −2,851,361.819 thousand AMD. The difference here is not merely a matter of numbers but of interpretation: using the final tax result presents the relationship between accounting and taxable income with the opposite sign.

How often prior-year losses were used also varies. Loss use was recorded in 6 years at ANPP, 4 at HVEN and 5 at Yerevan TPP. Of these

observations, the BTD sign changed in 3, 2 and 3 cases respectively. This suggests that the timing of tax losses is not a one-off technical adjustment but a systematic problem of interpretation, which can be avoided only by reporting current-year and carried-forward tax effects separately.

It is also worth noting that in 2020 BTD⁰ is negative for all three companies, and in 2021–2022 it is positive for all three. This simultaneous movement is interesting, but it is not causal evidence. Under the logic of multiple-case research, it is treated as a pattern that calls for a source-level explanation, not as automatic confirmation of a common macroeconomic or regulatory cause.

Table 4. *Use of prior-year tax losses and changes in BTD sign*

Company	Years with losses used	Years with sign change	Frequency, %	Losses used, AMD thousand
ANPP	6	3	50.0	53,397,233.707
HVEN	4	2	50.0	27,306,127.015
Yerevan TPP	5	3	60.0	43,046,411.616
Total	15	8	53.3	123,749,772.338

Source: author's calculations. The 53.3% figure is computed as 8/15 and is not a simple average of the individual company percentages.

3.3. Timing profiles of fixed assets and their deferred tax effect

In capital-intensive power companies, fixed assets are a natural testing ground for timing differences between accounting and tax measurement. The depreciation rules in the Armenian Tax Code set minimum useful lives for different groups of fixed assets, while in financial reporting depreciation is based on the estimated useful life of the asset and on accounting measurement [2]. This gap can create or reverse temporary differences, but the net movement in the DTL for the year does not, by itself, separate newly originated differences from the reversal of older ones.

At HVEN, the carrying amount of fixed assets rose from AMD 57,409,668 thousand in 2016 to AMD 116,773,347 thousand in 2025, an increase of about 103.4%. Over the same period, the published DTL for fixed and intangible assets grew from AMD 837,004 thousand to AMD 2,670,234 thousand, or roughly 219%. Cumulative additions exceeded depreciation by a factor of 3.31. This joint movement fits a picture of intensive asset renewal and an expanding deferred tax effect, but it does not prove that new temporary differences outpaced reversals in every single year. Moreover, HVEN's disclosure combines fixed and intangible assets, so attributing the whole DTL to fixed assets alone would not be methodologically sound.

At ANPP, the carrying amount of fixed assets rose by about 12.2% over the same period, while the related DTL fell from AMD 5,096,620 thousand to AMD 654,677 thousand, a decline of about 87.2%. Cumulative additions exceeded depreciation, yet the tax effect went down. The drop in 2025 is particularly steep, from AMD 2,046,586 thousand to AMD 654,677 thousand, and we treat it as a point of abrupt structural change in the series. The result shows that the volume of investment alone is not enough to explain how temporary differences evolve.

At Yerevan TPP, the carrying amount of fixed assets decreased by about 20.5% in 2016–2025, and the related DTL by about 46.8%. The cumulative ratio of additions to depreciation is 0.61. Here the tax effect remained in place throughout the period, even though the asset base shrank. Comparing the three cases thus yields three distinct profiles: a growing tax effect; a falling tax effect despite a growing asset base; and a tax effect that persists but declines as the asset base contracts.

Table 5. *Movement of fixed assets and the related deferred tax effect, 2016–2025, AMD thousand*

Indicator	ANPP	HVEN	Yerevan TPP
Carrying amount of PPE, 2016	66,025,067	57,409,668	123,079,995
Carrying amount of PPE, 2025	74,062,823	116,773,347	97,818,497
Cumulative additions	166,057,481	109,478,152	32,426,318
Cumulative depreciation	150,537,489	33,089,515	53,415,012
Additions / depreciation	1.10	3.31	0.61
Asset-related DTL, 2016	5,096,620	837,004*	2,665,780
Asset-related DTL, 2025	654,677	2,670,234*	1,418,719

Note: * for HVEN, the figure is published as a combined line for property, plant and equipment and intangible assets.
Source: author's calculations based on audited financial statements.

4. Discussion and Evaluation of the Hypotheses

The results consistently show that the book-tax differences of three companies operating under the same legal and reporting framework are not uniform, either in their sources or in their timing. On this basis, hypothesis H1(a), which holds that the differences between financial and tax accounting at Yerevan TPP, ANPP and HVEN differ in their source structure, receives consistent empirical support within the cases studied. Alongside shared sources such as fixed assets, there are company-specific effects, or effects disclosed to varying degrees, relating to inventories, grants, liabilities, loans and tax losses.

Hypothesis H1(b) concerns the behaviour over time of the size, direction and source composition of the differences. The sign changes in BTD⁰, the timing of tax-loss use and the different deferred tax profiles of fixed assets all point to company-specific patterns over time. H1(b) therefore also receives consistent empirical support within the three cases. This conclusion is an analytical generalisation; it does not imply statistical representativeness for the electric power sector of Armenia as a whole.

Hypothesis H2 concerns the mechanism by which a persistent balance of fixed-asset temporary differences can be accompanied by the origination of new differences and the reversal of earlier ones. The data are consistent with this mechanism, since asset movements and DTL movements do not form a simple one-to-one relationship in any of the three companies. The published data, however, do not allow the annual gross flows of newly originated and reversed temporary differences to be measured separately. H2 should therefore not be presented as directly confirmed. The results are consistent with its mechanism, but a direct test would require annual registers of the actual tax base of assets, tax depreciation, and the origination and reversal of temporary differences.

From a methodological standpoint, the results also have wider relevance. The first issue is timing attribution: when the use of prior-year tax losses is not separated from the current-year BTD, the sign of the difference changes in 26.7% of firm-year observations. The second is the level of measurement: the profit-level BTD and the balance-sheet temporary difference are different economic measures. The third is the distinction between source and factor: a change in the balance of a single source may result from several processes pulling in opposite directions. Taken together, these three distinctions provide a basis for a more controlled and reproducible analysis of book-tax data. They are also in line with the literature reviewed above, which warns against reading aggregate BTD and deferred tax figures without regard to their composition [**10**; **11**; **23**; **28**].

Conclusions

The study shows that assessing the differences between financial and tax accounting cannot be reduced to a single overall gap between book and taxable income. Data for three Armenian electric power companies over 2016–2025 confirm the need to break these differences down by source and by period. First, the current-year BTD should be separated from the effect of tax losses carried forward from earlier periods. In 8 of the 30 firm-year observations, this separation changed the sign of the BTD, which shows how much the timing problem matters in practice. Second, the profit-level BTD and the balance-sheet temporary difference should be used as distinct, if related, measures. Third, for fixed assets, the movement of the deferred tax effect cannot be explained by the volume of investment or book depreciation alone: the profiles of ANPP, HVEN and Yerevan TPP differ substantially. Fourth, the limits of published reports call for a hierarchy of documentary evidence and for refusing to allocate differences to sources on the basis of assumptions.

From both a research and a practical perspective, the proposed approach allows book-tax differences to be examined in the sequence “source – timing attribution – balance-sheet effect – driving factor”. This framework can be used to improve companies' internal tax reconciliations, source-level control over deferred taxes and multi-year book-tax analysis. A natural next step is to build annual registers of carrying amounts and tax bases at the level of fixed assets and other major sources. This would make it possible to separate the origination and reversal of temporary differences directly and to test the H2 mechanism more rigorously.

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