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Crossing the Audit Threshold: The Statutory Audit Obligation and the Financial Structure of Romanian Agricultural Firms, 2010–2024

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Abstract

The statutory audit obligation in Romania is triggered by size criteria that firms cross in both directions as they grow and contract, which produces within-firm variation in audit status. We ask what changes in the financial structure of agricultural firms when they become subject to audit, and whether the change can be attributed to audit itself. A hand-collected panel of 186 agricultural firms from 37 counties, observed over the fifteen financial years 2010 to 2024 and yielding 2,522 usable firm-year observations, is used to reconstruct the obligation year by year from the limits in force. The panel records 155 entries into the obligation, 48 exits and 38 firms crossing in both directions. Two-way fixed-effects regressions with standard errors clustered by firm, and an event study around the first entry, are estimated on winsorised ratios. Becoming subject to audit is associated with an increase of 0.0112 in return on assets, significant only at the 10 per cent level, and an increase of 0.185 in asset turnover, significant at the 1 per cent level, while leverage and the current ratio do not change. Around the first entry, apparent reductions in leverage and gains in liquidity vanish once year effects are included, which identifies them as sector-wide trend rather than a consequence of crossing. The pattern is more plausibly a mechanical consequence of how the criteria are built than an effect of audit. We document a policy discontinuity not previously described for Romanian agriculture and set out what a causal reading would require.

Keywords: size criteria; mandatory assurance; panel data; event study; liquidity
JEL Classification: M42; M41; G32; Q14

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1. INTRODUCTION

Romanian accounting regulation makes the statutory audit obligation conditional on size. An entity that exceeds two of three criteria, on total assets, net turnover and average number of employees, in two consecutive financial years becomes subject to audit; an entity that falls back below the same limits for two consecutive years ceases to be. The rule creates a discontinuity in regulatory treatment

that is determined by observable accounting quantities, and it produces movement in both directions as firms grow, contract and grow again.

That movement is the object of this paper. Agriculture is among the most cyclical activities in the Romanian economy: turnover responds to weather, to commodity prices and to the timing of subsidy payments, and total assets move with the value of inventories and land. A firm whose turnover is close to the limit in one year may be well above it in the next and below it again two years later. The panel assembled here, covering 186 agricultural firms from 37 counties across the fifteen financial years 2010 to 2024, contains 155 entries into the obligation and 48 exits from it, and 38 firms that cross in both directions. Only 2 firms are never obliged and 40 are obliged throughout, so almost all the identifying variation is within firms rather than between them.

The paper makes two contributions. The first is descriptive. It documents the frequency and the direction of threshold crossings among Romanian agricultural firms, and it reports how the main financial ratios differ between obliged and non-obliged firm-years and how they move within firms around the transition. To our knowledge this has not been done before on a panel of this length for the sector, and the frequency of reversals turns out to be the most policy-relevant part of the description. The second contribution is methodological, and it is a matter of restraint rather than of technique. The obligation is a deterministic function of the size variables, and size is correlated with almost everything else in a firm's financial structure. A fixed-effects regression of a financial ratio on the obligation indicator therefore recovers a mixture of any audit effect and the mechanical effect of the crossing itself. The paper reports the association, states the confound plainly, tests the event-study evidence against the inclusion of year effects, and explains what design would be needed to separate the two readings.

Section 2 reviews the literature on audit thresholds, on the effects of voluntary and mandatory audit on the cost of debt and on reporting quality, on the financing of agricultural firms, and on the econometrics of designs in which treatment is a function of the outcome's own determinants. Section 3 then sets out the Romanian legal framework with the threshold values in force in each year, the data source, the construction of the panel and the estimation strategy. Section 4 reports the results. Section 5 discusses them against the literature and against the identification problem. Section 6 concludes, states the limitations of the study and points to future research.

2. LITERATURE REVIEW

2.1 Size Thresholds and the Design of Audit Exemptions

The European framework for private-firm reporting rests on size categories. Directive 2013/34/EU defines micro, small, medium-sized and large undertakings by reference to balance sheet total, net turnover and average number of employees, and it allows Member States to exempt small undertakings from the statutory audit (European Parliament and Council, 2013). Because the monetary

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limits are fixed in nominal terms, they drift in real terms with inflation, and Commission Delegated Directive (EU) 2023/2775 raised them by roughly a quarter to restore their original scope (European Commission, 2023a). Romania has used the discretion the Directive allows in a distinctive way: rather than tying the audit to the medium-sized category, it has set separate audit criteria, historically well below the Directive's medium-sized limits, so that a considerable number of firms that are small by European standards are subject to statutory audit in Romania.

Thresholds of this kind are not neutral. Bernard et al. (2018) show that European private firms manage their size to stay below the limits that trigger disclosure and audit requirements, and that the bunching just below the thresholds is concentrated among firms for which the proprietary costs of disclosure are highest. Beuselinck et al. (2023) survey the European private-firm reporting environment and note that the same nominal threshold has a very different bite across countries and across industries, depending on the size distribution of firms and on the volatility of the variables on which the criteria are defined. Minnis and Shroff (2017) ask why private-firm disclosure and audit should be regulated at all, and their answer, that regulation is justified where the externalities of unverified reporting are large relative to the cost of verification, has an obvious implication for threshold design: the criteria should identify firms whose reporting matters to third parties, and a criterion that switches on and off from year to year for reasons unrelated to that purpose is poorly targeted.

The Romanian setting is of interest because the audit criteria operate on a two-year rule in both directions. The two-year requirement prevents the obligation from responding to a single good or bad year, but it also produces lagged entries and lagged exits, and in a volatile sector it can generate an obligation that switches repeatedly. Breuer (2021) documents that reporting regulation tied to size thresholds affects the allocation of resources across firms within an industry, which suggests that the consequences of a threshold are not confined to the firms that cross it.

2.2 Audit, Cost of Debt and Reporting Quality in Private Firms

Research on audit in private firms is divided between studies that find real effects of assurance and studies that find those effects small once selection into audit is handled. The strongest evidence of real effects comes from settings in which audit is voluntary and lenders can observe the choice. Minnis (2011) finds that privately held United States firms with audited financial statements pay lower interest rates, and that lenders place more weight on audited accounting numbers when setting the price of credit. Dedman and Kausar (2012) show that United Kingdom private firms that retained a voluntary audit after the exemption threshold was raised received higher credit ratings than firms that opted out, and that the difference is not explained by observable characteristics. Kausar et al. (2016) go further and document real effects: firms that choose audit subsequently obtain more external financing and invest more, consistent with audit relaxing a financing constraint.

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Evidence pointing the other way concerns mandatory audit and the quality of the reporting it produces. Lennox and Pittman (2011) exploit the same United Kingdom deregulation and find that the signal value of audit lies in the voluntary choice: firms that would have chosen audit anyway benefit from being seen to choose it, whereas the mandatory regime conveyed no such signal. Ball and Shivakumar (2005) show that private United Kingdom firms report earnings of lower quality than public firms, with less timely recognition of losses, and they attribute the difference to demand rather than to the presence or absence of audit. Downing and Langli (2019) study the Norwegian audit exemption and find that firms which opted out of audit did not show a measurable deterioration in tax and accounting compliance, which weakens the case that mandatory audit is the mechanism that keeps reporting honest in small firms. Vanstraelen and Schelleman (2017) review the private-company auditing literature and conclude that the evidence on the benefits of mandatory audit is far thinner than the evidence on voluntary audit, largely because it is so difficult to find variation in mandatory audit status that is not driven by the firm's own characteristics.

Demand matters as well. Berger and Udell (1998) describe the financial growth cycle of small businesses, in which the sources of finance shift from insiders and trade credit to bank debt and eventually to external equity as the firm becomes more informationally transparent. Audit sits in that cycle as a mechanism that reduces information asymmetry with lenders, and its value depends on whether lenders actually rely on the audited statements. Where credit is collateral-based, or where a public agency rather than a bank is the main source of funds, the information channel through which audit is expected to matter is weak. This is precisely the situation of much of Romanian agriculture.

2.3 The Financing of Agricultural Firms

Agricultural firms differ from the private firms that dominate the audit literature in three respects that bear on the question studied here. Their income is unusually volatile: Eurostat's economic accounts for agriculture show year-to-year swings in the value of Romanian crop output that are large by comparison with other Member States, driven by weather and by international commodity prices (Eurostat, 2024b). Their balance sheets are dominated by land, buildings and inventories, so that credit is typically secured on assets rather than priced on reported earnings. And a large share of their income comes from public support: direct payments under the Common Agricultural Policy account for a substantial part of farm income in Romania, and the timing of those payments moves reported turnover and cash between financial years (European Commission, 2023b; OECD, 2023).

The fi-compass study of financial needs in the Romanian agriculture and agri-food sectors documents a financing gap concentrated among small and medium-sized farms, a strong reliance on subsidy-backed and collateral-backed lending, and a limited use of financial statements by lenders in credit decisions (fi-compass, 2020). Eurostat's structural statistics show that Romania has by far the largest number of agricultural holdings in the European Union and a strongly bimodal size distribution, with a small number of large corporate farms operating alongside millions of very small

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holdings (Eurostat, 2024a). The firms studied here belong to the corporate segment, which is where the audit thresholds bite, and their turnover and asset values place them close to the criteria for a large part of the period.

These features matter for the interpretation of any association between audit status and financial structure. If lenders do not read audited accounts, the cost-of-debt channel identified by Minnis (2011) is unlikely to operate, and the main channel through which audit could affect leverage or liquidity is closed. If turnover is volatile because of weather and payment timing, crossings of the threshold are frequent and largely exogenous to the firm's decisions, which is helpful for identification, but they are also temporary, which means that any audit relationship they trigger is short-lived.

2.4 Identification When Treatment Is a Function of the Outcome's Determinants

The obligation studied here is a deterministic function of three accounting variables and of their two-year history. Any regression of a financial ratio on the obligation indicator therefore faces a confound that no set of fixed effects removes: firms cross because their size variables have moved, and their financial ratios move with the same variables. The literature offers three responses. A regression discontinuity design compares firms just above and just below a cut-off, on the argument that they are otherwise similar; Cattaneo and Titiunik (2022) review the conditions under which this is credible, and the Romanian rule, with three criteria and a two-year history, does not present a single running variable to which the design could be applied without strong simplifying assumptions. A difference-in-differences design exploits a reform that moves the thresholds, so that some firms change status without any change in their own figures; this is the design used in the United Kingdom and Norwegian studies above.

A third response is an event study around the crossing, which is what this paper estimates. Recent econometric work has clarified when such designs are informative. Goodman-Bacon (2021), Callaway and Sant'Anna (2021) and Sun and Abraham (2021) show that two-way fixed-effects estimators with staggered treatment timing can be biased when treatment effects are heterogeneous, because already-treated units act as controls for later-treated ones. Borusyak et al. (2024) propose an imputation estimator that avoids the problem, and Baker et al. (2022) document how often the bias matters in finance applications. Roth et al. (2023) and de Chaisemartin and D'Haultfœuille (2023) survey the field. Two further points are directly relevant here. Roth (2022) shows that pre-trend tests have low power and that conditioning on passing them distorts the post-treatment estimates; Rambachan and Roth (2023) propose reporting how far parallel trends could be violated before the conclusion changes. The inference must also respect the panel structure: firm-years are not independent, and MacKinnon et al. (2023), building on Cameron and Miller (2015), set out when clustering by firm is adequate and when it is not. With 186 clusters the asymptotic approximation is reasonable, and the results below rely on it.

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3. METHODOLOGY

3.1 The Romanian Legal Framework and the Obligation Variable

The statutory audit obligation for Romanian entities that apply the national accounting regulations is defined by the accounting orders of the Ministry of Public Finance, with the audit itself governed by Law No. 162/2017 (Parliament of Romania, 2017). Two successive orders cover the period studied. For the financial years 2010 to 2014, Order No. 3055/2009 applied (Ministry of Public Finance, 2009). It set the criteria at total assets of EUR 3,650,000, net turnover of EUR 7,300,000 and an average number of employees of 50, and it required audit when an entity exceeded the limits of at least two of the three criteria in two consecutive financial years. Because the limits were expressed in euro and the statements are in lei, the comparison was made at the exchange rate published by the National Bank of Romania for the balance sheet date, so that the lei value of the monetary thresholds moved from year to year with the exchange rate.

From the financial year 2015, Order No. 1802/2014 replaced the earlier order (Ministry of Public Finance, 2014). The criteria were re-expressed in lei, at total assets of 16,000,000 lei, net turnover of 32,000,000 lei and an average of 50 employees, and the two-of-three rule over two consecutive financial years was retained. The exit rule is symmetrical: an entity that has become subject to audit ceases to be so when it falls below the limits of at least two of the three criteria in two consecutive financial years. Delegated Directive (EU) 2023/2775 raised the monetary limits of the European size categories by about 25 per cent to correct for inflation, and the transposition into the Romanian accounting regulations lifted the lei limits of the audit criteria with effect for the financial year 2024 (European Commission, 2023a). The coding used here applies, for each financial year, the limits in force for that year, including the uplifted limits for 2024.

Our obligation variable reproduces the rule as applied year by year to each firm on the balance-sheet figures the firms themselves filed. For a firm in financial year t, the three criteria are evaluated in year t and in year t − 1; the firm is coded as obliged if the limits of at least two criteria were exceeded in both years, and as leaving the obligation if it was obliged and fell below at least two of the limits in both years. The variable records whether the obligation applies, not whether an audit was in fact performed. This is a deliberate choice. The filed statements do not record the appointment of an auditor, and inferring it from other sources would introduce measurement error of unknown sign. Since the rule in year t requires the figures for year t − 1, the obligation cannot be determined for the first year in which a firm appears in the panel, nor for any year that follows a gap in its filings.

3.2 Data Source and Panel Construction

The data are the annual financial statements that Romanian companies file with the Ministry of Finance and that the Ministry publishes in summary form on its website (mfinante.gov.ro). The statements were retrieved firm by firm and year by year, matched on the fiscal identification code, for

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financial years 2010 to 2024. Statements for the financial year 2025 had not yet been filed when this paper was written, as the filing deadline falls at the end of May 2026, and the panel therefore ends with the 2024 statements; this is why the period is fifteen years and not sixteen.

Firms were selected from the population of companies with a main activity in crop and animal production on two cumulative conditions: presence in every year of a shorter reference panel used in the author's doctoral research, and at least one financial year in which the limits of two of the three size criteria were exceeded. The second condition concentrates the sample on firms near or above the threshold, which is where the identifying variation lies, and it means that the levels reported below should not be read as sector averages. The 186 firms that satisfy both conditions are located in 37 of Romania's 42 counties, with the largest concentrations in the grain-growing counties of the south and east.

Fifteen financial years for 186 firms would give 2,790 firm-year observations. The usable panel contains 2,522. The difference of 268 arises from two sources. The first is missing or unusable statements: 94 firm-years are absent because the firm did not file for that year or because the filed statement reports non-positive total assets or turnover, which happens for firms in the process of formation or liquidation. The second is undeterminable obligation status: 174 firm-years are dropped because the two-year rule requires the previous year's figures and these are not available, either because the year is the first in the panel (162 of the 174 fall in 2010) or because the previous year's statement is missing (the remaining 12). Coding these firm-years as not obliged, which an earlier version of this analysis did, would have manufactured 50 entries into the obligation that never occurred, and the count of entries reported below is therefore lower and, we believe, correct.

Across the usable panel, 1,512 of the 2,522 firm-years, or 60.0 per cent, meet the audit criteria. Figure 1 plots the share by financial year. The share rises from around 30 per cent in the early years of the panel to above 80 per cent in the last three, which reflects both the nominal growth of the firms and the fixed nominal limits of the criteria after 2015. That upward drift is itself a feature of the rule rather than of the sample, and it is one of the reasons why year effects are indispensable in the estimation.

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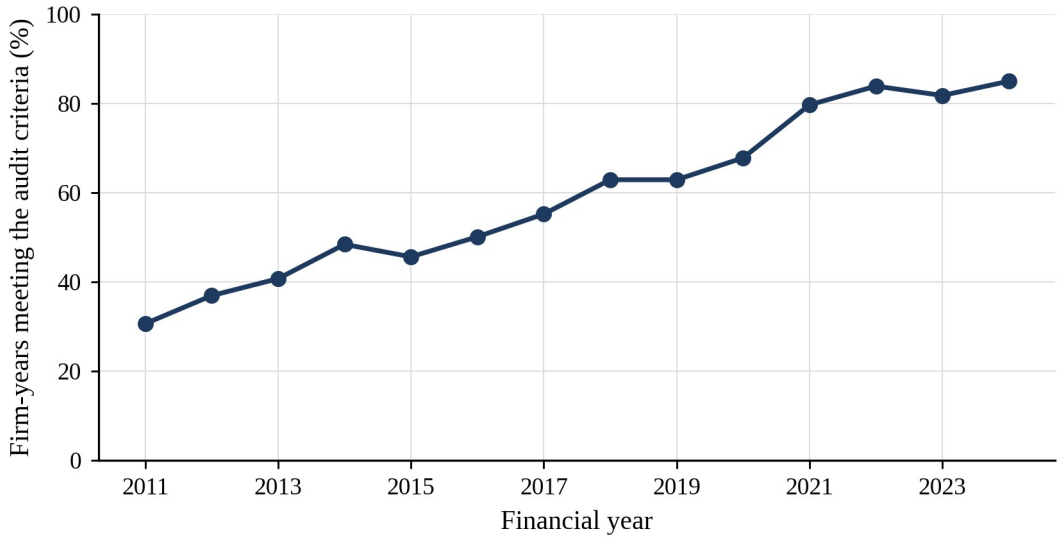


Figure 1. Share of firm-year observations meeting the statutory audit criteria, by financial year, 2011–2024. The sample is concentrated on firms near the size thresholds by construction.

Source: Author's own elaboration on annual financial statements published by the Ministry of Finance.

3.3 Variables

Six financial ratios are constructed from the filed statements. Return on assets is net profit divided by total assets. Leverage is total liabilities divided by total assets. The current ratio is current assets divided by current liabilities. Net margin is net profit divided by net turnover. Capital intensity is fixed assets divided by total assets. Asset turnover is net turnover divided by total assets. The size control is the natural logarithm of total assets in lei at the balance sheet date.

All six ratios are winsorised at the first and ninety-ninth percentiles of their pooled distribution. This is not cosmetic. In the raw data a small number of firms with near-zero turnover produce net margins in the hundreds, and an unwinsorised regression is driven entirely by them; the untreated estimates were checked and are not reported because they are uninformative. Even after winsorisation the current ratio and net margin remain skewed, which is why the comparison of means in Section 4.1 was accompanied by rank-based tests as a check.

3.4 Estimation and Diagnostics

Three specifications are estimated. The first is a comparison of means between obliged and non-obliged firm-years. The comparison is made with Welch's t-test, once treating firm-years as independent and once with standard errors clustered by firm, so that the reader can see how much of the apparent precision comes from counting the same firm many times. Wilcoxon rank-sum (Mann-Whitney) tests were also run for each ratio; they give the same pattern of significance as the clustered t-tests and are not reported separately.

The second specification is a two-way fixed-effects regression, given in Equation (1):

$$y_{it} = \alpha_i + \lambda_t + \beta\ \mathrm{OBLIGED}_{it} + \gamma\ \ln(\mathrm{ASSETS})_{it} + \varepsilon_{it} \qquad (1)$$

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where y_{it} is one of the financial ratios for firm i in year t, α_i is a firm fixed effect, λ_t is a year fixed effect, $OBLIGED_{it}$ is the obligation indicator described in Section 3.1, and $\ln(ASSETS)_{it}$ is the logarithm of total assets. Standard errors are clustered by firm. Including the logarithm of total assets is essential and insufficient at the same time: essential because the obligation is a function of size, insufficient because it is a function of three size variables and of their two-year history, which a single contemporaneous control cannot absorb. The firm effects remove all time-invariant differences between firms, including the selection into the sample; the year effects remove sector-wide shocks such as the drought years, the changes in support payments and the uplift of the thresholds.

The third specification is an event study around the first entry into the obligation. It restricts attention to the window from three years before to three years after the first year in which a firm becomes obliged, and it regresses each ratio on a post-entry indicator with firm fixed effects, first without and then with year fixed effects. The comparison between the two versions is the diagnostic that matters. Entries are not spread evenly over the period: they cluster in years of strong nominal growth, and a specification without year effects attributes the sector-wide movement of those years to the crossing. The event study drops the exits and the repeat crossings and asks the narrower question of what changes around the first time a firm becomes subject to audit; as a check on pre-existing trajectories, each ratio is also regressed on the year relative to entry within the pre-entry window only, with the caveats about the power of such tests noted by Roth (2022).

Two diagnostics were carried out and are reported where relevant. The share of obliged firm-years by year, in Figure 1, indicates how much of the variation in the obligation is common to all firms in a given year and therefore absorbed by the year effects. The distribution of size by obligation status, in Figure 2 below, indicates how much overlap there is between the two groups in the region where the crossings occur; without such overlap a within-firm comparison would have nothing to identify on.

4. RESULTS

4.1 Obliged and Non-Obliged Firm-Years Differ Mainly in Size

Table 1 reports the comparison of means. The difference that dominates is size itself: obliged firm-years have a mean log total assets of 18.05 against 16.99 for non-obliged firm-years, a standardised difference of 1.18, which is the mechanical consequence of the rule. Leverage is lower among obliged firm-years, at 0.522 against 0.572, and the difference survives clustering ($t = -2.115$, $p = 0.034$). The current ratio is higher among obliged firm-years, at 1.460 against 1.250, but the difference is significant only when firm-years are treated as independent ($p = 0.003$) and not once standard errors are clustered by firm ($p = 0.137$). Return on assets, net margin, capital intensity and asset turnover show differences that are small in magnitude and not significant under either treatment of the standard errors. The rank tests described in Section 3.4 give the same pattern.

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Table 1.
Financial characteristics of obliged and non-obliged firm-years

Variable	Not obliged: mean (SD)	Obliged: mean (SD)	t (naive)	p (naive)	t (clustered)	p (clustered)	Cohen's d
Return on assets	0.064 (0.085)	0.058 (0.078)	−1.805	0.0712	−1.040	0.2983	−0.074
Leverage	0.572 (0.269)	0.522 (0.240)	−4.776	0.0000	−2.115	0.0344	−0.196
Current ratio	1.250 (1.623)	1.460 (1.840)	3.013	0.0026	1.486	0.1372	0.121
Net margin	0.067 (0.145)	0.065 (0.109)	−0.378	0.7053	−0.218	0.8276	−0.016
Capital intensity	0.516 (0.205)	0.503 (0.180)	−1.612	0.1072	−0.814	0.4156	−0.066
Asset turnover	0.973 (0.832)	0.986 (0.657)	0.398	0.6910	0.200	0.8414	0.017
ln(total assets)	16.986 (1.030)	18.051 (0.761)	28.135	0.0000	14.304	0.0000	1.176

Note: Ratios winsorised at the 1st and 99th percentiles. The naive columns treat firm-years as independent, which they are not; the clustered columns allow for correlation within firm and are the ones to read. Of the three differences that are significant at the 5% level under the naive test (leverage, current ratio and log total assets), only the current ratio loses significance after clustering. Wilcoxon rank-sum (Mann-Whitney) tests give the same pattern of significance as the clustered t-tests. N = 1,010 non-obliged and 1,512 obliged firm-year observations for the leverage comparison; sample sizes vary slightly by variable because of missing components.

Source: Author's own calculations on annual financial statements published by the Ministry of Finance.

Figure 2 shows where the two groups sit on the size distribution. The two histograms overlap over a wide band of log total assets, roughly from 16 to 19, and it is in that band that firms cross the threshold in both directions. Below about 15.5 almost no firm-year meets the criteria; above about 19.5 almost every firm-year does. The overlap is what makes within-firm estimation possible, and its width is a reminder that the obligation depends on turnover and employees as well as on assets, so that two firms of the same asset size can be on opposite sides of the rule.

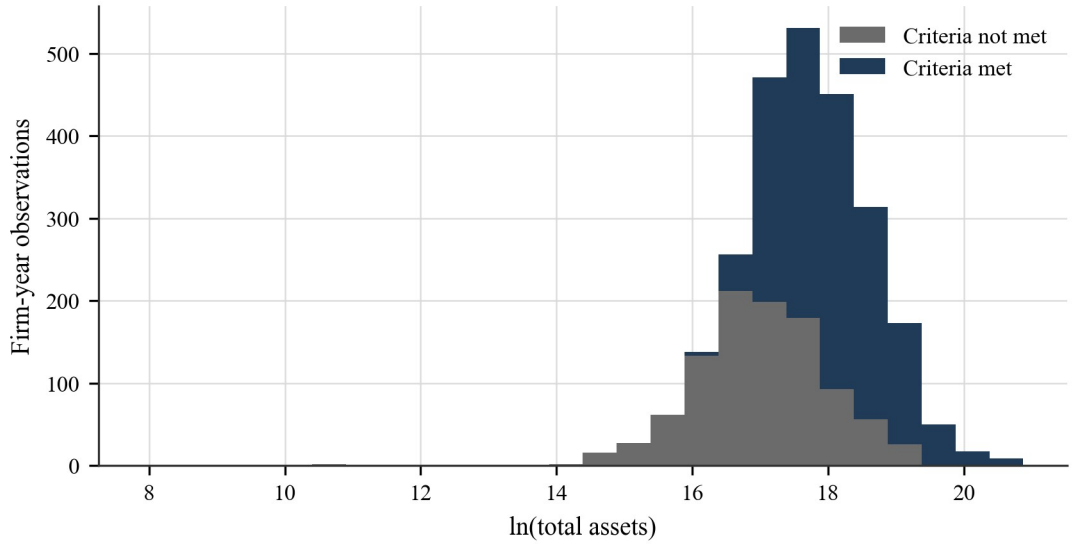


Figure 2. Distribution of firm size by audit status. The overlap in the middle of the distribution is the region in which firms cross the threshold in both directions.

Source: Author's own elaboration on annual financial statements published by the Ministry of Finance.

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4.2 Within-Firm Estimates

Table 2 reports the fixed-effects estimates of Equation (1) for the four ratios of principal interest. Two coefficients on the obligation indicator are distinguishable from zero, and only one of them comfortably. Return on assets is 0.0112 higher in obliged firm-years, with a p-value of 0.066, which is significant at the 10 per cent level but not at the conventional 5 per cent level, and the estimate should be read with that qualification. Asset turnover is 0.185 higher in obliged firm-years ($p < 0.001$), significant at the 1 per cent level. Leverage and the current ratio show no change that can be distinguished from zero: the leverage coefficient is −0.0122 ($p = 0.468$) and the current ratio coefficient is 0.1947 ($p = 0.186$). The size control is negative and significant for the current ratio and for asset turnover, and not significant for return on assets or leverage.

The asset turnover result is the largest in relative terms and also the least surprising. Turnover is one of the three criteria, so a firm that has just crossed the threshold is, almost by construction, a firm whose turnover has risen relative to its assets. A regression of asset turnover on an indicator that is defined partly by asset turnover is not an estimate of an audit effect, and the paper does not present it as one. The return on assets coefficient is subject to the same objection in weaker form, since profitability is correlated with the criteria without entering them directly. The estimates are reported because the pattern is worth documenting, and the confound is stated because it is not removable within this design.

Table 2.
Fixed-effects estimates: audit obligation and financial ratios

Dependent variable	Obligation coefficient	Std. error	p	ln(total assets)	Std. error	p	N	R^2
Return on assets	0.0112	0.0061	0.0664	0.0025	0.0048	0.6022	2517	0.409
Leverage	−0.0122	0.0168	0.4681	0.0172	0.0215	0.4237	2517	0.722
Current ratio	0.1947	0.1473	0.1863	−0.4636	0.1840	0.0117	2517	0.666
Asset turnover	0.1851	0.0355	0.0000	−0.1170	0.0571	0.0403	2517	0.751

Note: All specifications include firm and year fixed effects. Standard errors clustered by firm. N is 2,517 rather than 2,522 because five firm-years lack a component of one of the dependent variables. The R-squared figures include the variance explained by the fixed effects and should not be read as the explanatory power of the obligation variable.

Source: Author's own calculations on annual financial statements published by the Ministry of Finance.

4.3 Around the First Crossing

Narrowing the question to the first crossing, the event-study specification gives an answer that depends on a specification choice we make explicit. Restricting attention to the 886 firm-year observations within three years of a first entry and including firm effects only, the post-entry indicator is −0.0308 for leverage ($p = 0.060$) and 0.218 for the current ratio ($p = 0.078$). Taken at face value, and at the 10 per cent level, these would support a story of balance-sheet tidying after entry: a firm that becomes subject to audit reduces its debt and accumulates working capital.

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Adding year effects, as Equation (1) requires, removes both. The leverage coefficient becomes −0.0007 (p = 0.950) and the current ratio coefficient 0.038 (p = 0.731); the return on assets coefficient is 0.0114 (p = 0.225). The apparent post-entry improvement is therefore a common time pattern in the sector rather than something that happens to firms when they cross. Entries cluster in particular years, and those were years in which the whole sample was deleveraging and building working capital; a specification without year effects attributes the sector-wide movement of those years to the crossing.

Figure 3 shows the winsorised means of the three ratios in the years around the first entry. The picture is consistent with the regression results. Return on assets rises sharply in the year before entry and in the year of entry, then falls back over the three post-entry years to below its level three years before; this is the profile of a firm whose crossing is triggered by a good year, not of a firm whose profitability improves because it is audited. Leverage peaks two years before entry and declines through the window, with no break at the entry year. The current ratio falls into the entry year and recovers afterwards, with a single high value two years after entry. None of the three series shows a discontinuity at the vertical line that would survive the removal of the common trend.

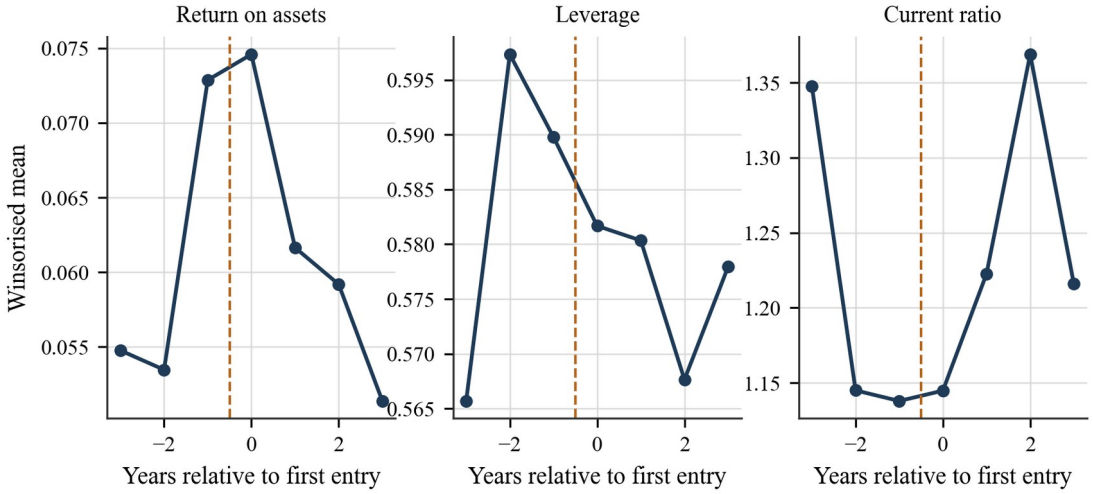


Figure 3. Mean financial ratios in the years around the first entry into the audit obligation. The vertical line marks the boundary between the pre-entry and post-entry years; values are winsorised means across firms.

Source: Author's own elaboration on annual financial statements published by the Ministry of Finance.

A pre-trend check points the same way. Regressing each ratio on the year relative to entry, using only the pre-entry window, gives a trend in return on assets of 0.00895 per year (p = 0.057), which is marginal, and no detectable trend for leverage or the current ratio. The rise in return on assets before entry visible in Figure 3 is exactly what a size-triggered rule produces: firms enter the obligation after good years. A design that cannot rule out a pre-existing trajectory cannot attribute a post-entry level shift to the obligation, and, with the caveats of Roth (2022) about the power of such tests, this one cannot.

Two readings were available before the year effects were added, and the data choose between them. The reading on which the obligation changes behaviour required the post-entry coefficients to

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survive controls for common time shocks. They do not. What remains is the second reading, on which a firm growing strongly enough to cross the threshold is also a firm that is deleveraging and accumulating working capital in years when the whole sector is doing so. That explanation requires no audit effect at all.

5. DISCUSSION

5.1 A Mechanical Crossing Rather Than an Audit Effect

The pattern of results is coherent once the construction of the obligation is kept in view. The variables that respond to the obligation in the fixed-effects estimates are the ones closest to the criteria: asset turnover, which contains net turnover in its numerator, and, more weakly and only at the 10 per cent level, return on assets, which rises in the years that trigger a crossing. The variables that the audit literature would expect to respond to assurance, leverage and liquidity, do not move within firms once year effects are included. This is the opposite of what a cost-of-debt channel would predict. In the voluntary-audit settings studied by Minnis (2011), Dedman and Kausar (2012) and Kausar et al. (2016), audit changes what lenders can observe and therefore changes the terms of credit and the amount of it. If that channel operated here, leverage would be expected to rise or its cost to fall after entry. Neither is visible.

Two features of the setting explain why. The first is that the obligation is mandatory and mechanical, and Lennox and Pittman (2011) show that the informational value of audit comes from the choice rather than from the audit itself; a lender who knows that a firm is audited only because it crossed a size limit learns nothing about the firm's willingness to be verified. The second is that Romanian agricultural credit is largely collateral-based and subsidy-backed, as documented by fi-compass (2020), so that even a voluntary audit would have a limited audience. The finding of Downing and Langli (2019), that removing the audit obligation from small Norwegian firms did not measurably change their compliance, is consistent with the view that in populations where third-party reliance on the accounts is weak, the obligation is largely a cost without a corresponding benefit. The Romanian agricultural evidence does not contradict that view, though it cannot confirm it either.

The results also illustrate a general point about size-triggered regulation. Bernard et al. (2018) show that firms manage their size to avoid thresholds; the firms studied here show little sign of doing so, since crossings are frequent and largely reversed, but that may reflect the difficulty of managing turnover in a weather-dependent activity rather than any indifference to the obligation. Beuselinck et al. (2023) note that the bite of a threshold depends on the volatility of the variables it is defined on, and agriculture is a case in which that volatility turns a permanent classification into a recurring one.

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5.2 What Would Be Needed to Identify an Effect

Separating the two readings requires variation in the obligation that is not a function of the firm's own accounts. Three designs would provide it. A regulatory reform that moves the thresholds generates firms whose status changes without any change in their own figures; this is the design of the United Kingdom and Norwegian studies, and the 2015 re-denomination of the criteria in lei and the 2024 uplift both provide candidate events, although the 2015 change is confounded by the general transition to Order No. 1802/2014 and the 2024 uplift is at the very end of the panel, with a single post-reform year. A regression discontinuity around the criteria would exploit the fact that firms marginally above and below are otherwise comparable; Cattaneo and Titiunik (2022) set out the requirements, and the present sample is too small in the neighbourhood of any single cut-off, and the rule too multi-dimensional, to support it. Observing the actual appointment of an auditor, rather than the obligation, would allow the compliance margin to be examined directly and would make it possible to separate firms that were audited from firms that were merely obliged to be.

The event-study evidence adds a fourth requirement. Because entries are staggered across years and because the composition of the sector changes over the period, the estimators of Callaway and Sant'Anna (2021), Sun and Abraham (2021) or Borusyak et al. (2024) would be the appropriate tools once a credible source of variation is found, and the sensitivity analysis of Rambachan and Roth (2023) would be needed to say how far the parallel-trends assumption could fail before the conclusion changed. None of these is available here, and the paper does not claim otherwise. What it does provide is the descriptive groundwork on which such a design could be built for this sector: the frequency of crossings, their direction, the years in which they cluster, and the financial correlates of the transition.

5.3 The Reversals Matter

Reversals deserve attention in their own right. The 48 exits and the 38 firms that cross in both directions are a substantive finding rather than a nuisance. A firm that enters the obligation, appoints an auditor, and leaves the obligation two years later faces an audit relationship that is unstable by regulatory design. Whatever benefit continuity of audit brings, through the auditor's accumulated knowledge of the client and the lender's accumulated confidence in the audited figures, this sector's firms are less likely to obtain it than firms in less cyclical industries. That is a consequence of applying uniform size criteria to an activity with high revenue volatility, and the two-year rule, which was designed to smooth exactly this kind of fluctuation, is not long enough to do so in agriculture.

There is a policy dimension to this. Minnis and Shroff (2017) argue that the case for mandatory audit rests on externalities that are specific to the firms whose reporting matters to third parties. A criterion that captures a farm in a good harvest year and releases it two years later does not identify such firms; it identifies firms that had a good year. Breuer (2021) shows that size-triggered reporting regulation reallocates resources within an industry, and a switching obligation of the kind documented here is likely to produce that reallocation in the least useful form, as a recurring

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compliance cost for firms whose status is determined by the weather. A sector-specific averaging period, or an averaging of the criteria over three years rather than a test in two consecutive years, would reduce the switching without weakening the obligation for firms that are persistently large.

6. CONCLUSIONS

Romanian agricultural firms cross the statutory audit threshold frequently and in both directions: 155 entries and 48 exits over the fifteen financial years 2010 to 2024 in a panel of 186 firms, with 38 firms crossing both ways. Obliged firm-years differ from non-obliged firm-years mainly in size, with lower leverage as the only other difference that survives clustering of the standard errors by firm. Within firms, and after firm and year fixed effects, becoming subject to audit is associated with higher asset turnover, which is close to a tautology given that turnover is one of the criteria, and with a higher return on assets that is significant only at the 10 per cent level. Leverage and the current ratio do not change. Around the first entry, the reductions in leverage and the improvements in liquidity that appear in a specification with firm effects alone disappear once year effects are included, and the post-entry coefficients are then not distinguishable from zero. The conclusions therefore agree with Section 4.3 rather than with the more attractive story: firms that have just entered the obligation do not, on this evidence, reduce leverage or improve liquidity as a result of entering.

Whether any of the associations that remain are caused by audit cannot be determined from a design in which the treatment is a deterministic function of the outcome's own determinants. The honest conclusion is that the correlations with the size-related ratios are real, that the mechanism is undetermined, and that the reversals uncovered here are the most policy-relevant part of the description: uniform size criteria applied to a volatile sector produce an audit obligation that switches on and off, which is unlikely to be what the criteria were designed to achieve.

The study has limitations that the reader should weigh. The sample is not representative of Romanian agriculture: it was constructed to concentrate on firms near the thresholds, and the levels reported here should not be read as sector averages. The obligation variable records the rule as applied to filed figures, not the appointment of an auditor, and the two can differ where firms fail to comply or where they retain an auditor voluntarily after exiting the obligation. The panel is unbalanced at the edges because not all firms report in all years, and the obligation cannot be determined in the first year of each firm's presence. The threshold for 2024 reflects the uplift transposed from the Delegated Directive, so that the last year of the panel is coded on a different nominal limit from the years before it. The statements for 2025 were not available when the paper was written. And the identification problem set out in Section 5.2 is described, not solved.

Future research can take three directions. The 2024 uplift of the thresholds will, once two or three post-reform years of statements are available, provide a source of variation in the obligation that does not depend on the firm's own figures, and a difference-in-differences comparison of firms released from the obligation by the uplift with firms that remain above it would be the natural next

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step. Linking the filed statements to the register of audit engagements held by the Romanian audit oversight authority would replace the obligation with the audit itself as the treatment. And extending the panel to other volatile sectors, such as construction and tourism, would show whether the switching documented here is a feature of agriculture or a general property of two-year size rules applied to cyclical activities.

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AUTHOR CONTRIBUTIONS

Conceptualisation, B.-R.O.K.; methodology, B.-R.O.K.; software, B.-R.O.K.; formal analysis, B.-R.O.K.; data curation, B.-R.O.K.; writing, original draft, B.-R.O.K.; writing, review and editing, B.-R.O.K. The author has read and agreed to the published version of the manuscript.

DATA AVAILABILITY

The panel was hand-collected from the annual financial statements published by the Romanian Ministry of Finance (mfinante.gov.ro), matched by fiscal identification code, for financial years 2010 to 2024. The assembled dataset, the threshold values applied in each year and the estimation code are available from the author on reasonable request.

DECLARATION OF INTEREST

The author declares no competing interests.

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