

# THE POLITICAL ROLE OF LOCAL GOVERNMENT CORPORATE OWNERSHIP: AN INTERDISCIPLINARY OUTLOOK BASED ON BENFORD'S LAW

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**How to cite:** Galati, L. (2023). The political role of local government corporate ownership: An interdisciplinary outlook based on Benford's law. In E. Karger & A. Kostyuk (Eds.), *Corporate governance: An interdisciplinary outlook* (pp. 108–114). Virtus Interpress. <https://doi.org/10.22495/cgaiop21>

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**Received:** 16.10.2022  
**Accepted:** 26.10.2022  
**Keywords:** Benford's Law, Cosmetic Earnings Management, Forensic Accounting, Local Elections, Municipally-Owned Entities  
**JEL Classification:** M1, M2, M4  
**DOI:** 10.22495/cgaiop21

## Abstract

*“People always find the law to be interesting because we like learning secrets and the fact that there is some underlying order to what seems like chaos is like discovering a secret code”* (Nigrini, 2012, p. 313).

In an exponentially evolving world that is increasingly relying on enormous amounts of data flowing into every area of the economy, having a tool that can spot fraudulent financial numbers on divided subsets of these ‘big data’, becomes an efficiency priority. Since those wrong numbers are frequently thought to be ‘round numbers’ (Nigrini, 2018), what would be certainly useful is a structured way of looking at irregularities in numerals’ occurrence, without trying to bet. Benford’s (1938) law is a mathematical phenomenon that helps in detecting white-collar crimes, when it comes to manipulated financial statements, through an analytical procedure that uncovers anomalies in certain digit patterns. Forensic accountants, auditors, or even judicial bodies that aim to protect public finance balances, can adopt Benford’s law as an analytical instrument to discover processing inefficiencies, frauds, or manipulative biases.

Capalbo (2016) identify a potential framework of Italian companies that needs particular attention as the government struggles to monitor the progress of the firms with prevalent state participation, whose control has been severely hampered by the ability to generate itself at all government levels. Companies resulting from the so-called state capitalism, referred to as state-owned enterprises (SOEs), are historically present in delicate and central sectors of the economy. More recently, we have also seen a proliferation of entities created by local administrations. These, however, have proved, in many cases, "to be mere extensions of the participating administration, devoid of any autonomous capacity for survival on the market, serial accumulators of negative results, and, in many cases, genetically condemned to insolvency" (Capalbo, 2016, pp. 117). Therefore, this research examines the earnings quality of those Italian municipally-owned entities (MOEs) by adopting the analytical procedure based on Benford's law to spot any red flags of accounting data manipulation.

There is a formidable body of accounting literature that examine 'cosmetic earnings management' (hereafter CEM) with the use of Benford's law. This includes studies examining listed companies in New Zealand (Carlsaw, 1988), the USA (Thomas, 1989; Guan et al., 2006), the UK (Van Caneghem, 2002, 2004), Finland (Niskanen & Keloharju, 2000), Japan (Skousen et al., 2004), Taiwan (Lin & Wu, 2014), Korea (Lacina et al., 2018), Romania (Istrate, 2019), and even in 18 different countries (Kinnunen & Koskela, 2003). Although a number of studies commonly approach the detection of earnings management<sup>1</sup> (EM) through the estimation of normal not publicly observed accruals (Jones, 1991), the last three decades have seen a dramatic growing trend towards the new digits-distribution examination method for assessing managerial efforts on reported earnings. There are two parallel streams of research examining the potentially noisy accrual estimation: one examines those accounting numerals patterns to address issues related to the managers' incentives in avoiding losses, earnings declines or shortfalls under market expectation (Das & Zhang, 2003); the other views the valuative and contracting incentives perspectives by assuming managerial efforts around reported earnings through rounding up behaviour when those are slightly below key cognitive reference points (Carlsaw, 1988; Thomas, 1989).

In this study, however, the purpose is not to evaluate the merits of the Benford's law approach to the detection of fraudulent accounting data *per se*, but, instead, is to extend prior research on the use of Benford's law as an analytical procedure to spot CEM to unlisted companies and, in particular, to the public sector context. This research,

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<sup>1</sup> Earnings management is intended as the strategic exercise, with or without restrictions, of the discretion given to managers over accounting numbers (Watts & Zimmerman, 1986).

therefore, aims to use the unique dataset of Capalbo et al. (2021) on Italian municipally-owned utilities (hereafter MOUs) to prove the usefulness of Benford's law in spotting accounting data manipulation within public sector organisations. In doing so, the study also examines the political role played by the corporate ownership of those local government-owned firms to emphasise whether MOUs' financial statements are a vehicle of local election attention. Specifically, the data are gathered to provide evidence of political connections in state ownership by documenting a positive relationship between MOUs' earnings management activities and elections. The found evidence is consistent with the political cost hypothesis of Watts and Zimmerman (1978) which corroborates the findings of Capalbo et al. (2021): Italian MOUs managers manipulate their financial statements referred to the year before a local election occurs as a consequence of the raising political cost. This implies that incumbent politician behaviour willing to improve SOEs' economic performance in order to alter voters' perception of their governing efficiency is a pressure perceived by managers of those entities during such delicate periods.

Finally, this investigation is of interest for several reasons. First, it is intended to extend prior research examining CEM through a Benford's law-based approach (Van Caneghem, 2002; Das & Zhang, 2003; Kinnunen & Koskela, 2003; Skousen et al., 2004; Guan et al., 2006), by analysing a context that has never been treated before with this interdisciplinary method, namely the public sector case of local government-owned entities in Italy. Second, unlike the bulk of these previous studies mentioned above, it provides evidence not only of cosmetic earnings management but also of political factors on those unusual patterns happening in Italian MOUs reported earnings. Third, unlike most prior studies, this research uses a unique dataset with total revenues as a control variable.

In the empirical analysis, the dataset of Capalbo et al. (2021) is used, collected from the AIDA (*Analisi Informatizzata delle Aziende Italiane*) database. The unique dataset consists of balance sheet items, the name of the municipality (i.e., the locality of the state-owned firms) and the recorded CCIAA code number, the day, month, and year of the election held in the local municipality. However, the study focuses on the total revenue numbers, consistent with the model of Stubben (2010), of 506 firms, which are those with a total amount of shares held by a single municipality above 50%. Indeed, this is the case where the control over the entity is expected to come from the municipality, since "when a municipality has a majority in the shareholders' meeting, both the ability of the incumbents to influence MOEs managers' accounting decisions and the perspective of political costs are likely to increase" (Capalbo et al., 2021, p. 11). The Italian municipally-owned

entities identified are those majorly operating in the utility sector (and sub-sectors), where Capalbo et al. (2021) again expect a greater political component in terms of visibility and relevance for the users/voters.

Over a 5-year period from 2009 to 2014, the final panel sample is based on 3036 observations of 506 MOUs, while the 8 election dates identified include time periods between 2010 and 2015. Those election dates involve 422 municipally-owned companies, distributed as 28 firms experiencing an election in 2010, 68 in 2011, 59 in 2012, 36 in 2013, 135 in 2014 and 36 in 2015. By using this data, the current study set out to investigate a particular type of earnings management — the so-called cosmetic earnings management (CEM) — depicted by companies' tendency toward small rounding behaviours of reported total revenue numbers before local elections. Specifically, the analysis examined the digits distributions of those firms experiencing an election soon after their financial statements were approved by the board of directors, and, therefore, published at the shareholders' meeting, finding an overuse of 88s and 42s as first-two digits of revenues amounts. While no significant evidence of managed earnings has been found in the full sample and in the one regarding those companies not facing an 'election year', statistical tests have shown that political links may influence the managerial decisions of entities prevalently participated by public administrations. Results, hence, have illustrated a positive relationship between elections and earnings management of MOUs, although this study does not attempt to prove politicians' involvement in these practices, but rather charges ultimately the managers of such responsibilities. Nevertheless, as Capalbo et al. (2021) argue, there is a reasonable doubt as to whether pre-electoral earnings manipulation, derived from growth in MOEs income numbers, might be due to the political opportunity of incumbents in altering voters' perception of their efficiency in governing.

Overall, this research contributes to the growing stream of literature on the integral approach based on Benford's law analysis, by documenting persuasive evidence of earnings manipulation in accounting digits distribution within public sector organisations. Around election periods from 2010 to 2015, Italian MOUs' managers have incentives to round reported total revenues the year just before elections are held (from 2009 to 2014). The empirical methodology adopted appears to well detect unusual patterns in those financial statements' numbers. This can be seen in the fact that the full MOUs revenues sample perfectly fit into Benford's distribution. Moreover, the approach outlined in this research may not be considered an accurate fraud detector, but it is still a great tool that can spot red flags and provide a first indicator of irregularities, errors, or processing inefficiency.

A number of limitations need to be noted regarding the present study. First, it cannot export its findings to the broad context of state ownership (and so to SOEs). Second, there could be an easily explained attribute of the accounting data that can lead the digits of these numbers to abnormally repeat themselves (Nigrini, 2020). In this case, Benford's law may not be useful in spotting CEM. Third, the time period examined might not be representative of the norm, or, more precisely, a single short time horizon might produce a biased result. Last, the leaking ambiguity raised by contrasting statistical conclusions that arose from the different tests performed in this work should still be addressed.

To conclude, there are several potential future research directions one can take to extend this contribution by also referring to its constraints. Further works could: 1) deeply examine whether the firms' earnings have certain unusual patterns due to features such as standardise commercial contracts, in order to prevent any biases in the overuse of digits; 2) take into account a longer time window, first to avoid the dangerousness of the period representation issue, and second to hopefully overcome the contrasting results ambiguity problem; 3) try to prove whether incumbent politicians effectively have opportunistic behaviours influencing managers earnings decisions and strategically exercise pressure on controlled MOEs. What is also needed is general research on how to use the digits distribution law without facing statistical ambiguity in diverse testing approaches. However, the Benford-based analysis on Italian pre-electoral MOUs' earnings management carried out so far provides some useful first indications. A policy implication also lies in urging institutional and judicial bodies, such as the Italian Corte dei Conti, to adopt such an intriguing analytical instrument, along with other tools, so as to prevent those opportunistic behaviours from happening in such crucial and delicate periods like political local elections. This, of course, would lead to an increasingly more efficient way of protecting public finance balances.

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