Chapter 18
Benford Law and Earnings Analysis:
International Comparison

Radiah Othman
https://orcid.org/0000-0002-9772-0439
Massey University, New Zealand

Rashid Ameer
https://orcid.org/0000-0002-6176-0391
IPU New Zealand Tertiary Institute, New Zealand

ABSTRACT

The literature suggests that firms are actively managing the smoothing of their reported positive net incomes. The observed frequency of second digits abnormally exceeds the level predicted by Benford's Law, which results in a higher frequency of the number zero and an abnormally low occurrence of the number nine in the second digit of the reported income numbers. A reversal pattern occurs for reported net losses. This phenomenon is typically peculiar to countries with weak governance and firms under pressure to meet analysts' expectations. This chapter examines 10 years of reported net incomes by 5,040 firms (44,636 firm-years) in 10 countries ranked as having the best corporate governance quality. The analysis reveals that firms in these countries were not spared from opportunistically rounding their earning numbers. In fact, this rounding behavior is more prevalent when net losses were reported and this rounding phenomenon co-varied with some institutional factors; in particular, the rule of law and government effectiveness has significantly influenced the rounding behavior.

INTRODUCTION

The governance literature suggests that governance-related factors such as hard and soft regulations, internal controls over financial reporting, and audit quality have impact on earnings quality (de Lima, Góis, De Luca, & de Sousa, 2018; Houqe, Ahmed, & van Zijl, 2017; Doyle, Brown, Pott, & Wömpener,

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2014; Chan, Farell, & Lee, 2008; Ge & McVays, 2007; Klein, 2002). Most of the earnings quality research either focuses on a single country (e.g., Rezaee, Zhang, Dou, & Gao, 2018; Katmon & AlFarooque, 2017; Brown, Pott, & Wömpener, 2014; Guan, Lin, & Fang, 2008) or on failing companies or countries with weak governance structure (e.g., Lewellyn & Bao, 2017; Latif, Latif, & Abdullah, 2017; Alali & Romero, 2013; Chan et al., 2008). This evidence suggests that poor earnings quality is expected in countries with weak governance and for firms experiencing a financial downturn. Conversely, it is assumed that the earnings' quality of companies in countries with good governance is expected to be high. However, there are limited comparative studies that focus on countries with a good governance structure to prove this general assumption. Thus, this chapter aims to address this gap.

Framed by a psychological theory of cognitive reference points (Rosch, 1975; Gabor & Granger, 1966; Carslaw, 1988;), this chapter uses Benford's Law (thereafter, BL) (Benford, 1938)'s digital analysis to examine the earnings quality of countries ranked in the top ten in terms of governance. The concept of cognitive reference points explains the tendency of humans to round an observed number to the nearest reference point (Lin et al., 2018; Jordan et al., 2017; Dang et al., 2017; Kinnunen & Koskela, 2003; Van Caneghem, 2002; Hill, 1995; Carslaw, 1988). People tend to assign the largest weight to the first digit, then to the second and so on. This psychological approach in assessing numbers may influence users of financial statements in their decision-making. For example, a loss of $1,900,000 is perceived as much smaller than a loss of $2,000,000, whereas a profit of $2,000,000 is perceived as significantly more substantial than a profit of $1,900,000. These cognitive reference points (Rosch, 1975) may tempt managers to round earning numbers upward for reporting a profit and downward for reporting a loss.

The rounding of earnings upward and downward is a worldwide phenomenon. Using BL on accounting data from 18 selected countries, Kinnunen and Koskela (2003) (hereafter, KK) refer to this rounding up phenomenon as cosmetic earnings management (CEM). Recent studies confirm KK assertions (Lin et al., 2018; Lacina, Lee, & Kim, 2018; Lewellyn & Bao, 2017; Stojavonic & Boroweicki, 2015) (hereafter, SB). In their study, KK only looked at the first and second digit positions of earning numbers. Other recent studies found evidence that besides than first and second digit also serves as a reference point (Lacina et al., 2018; Stojanovic & Boroweicki, 2015; Skousen, Guan, & Wetzel, 2004) but only KK and SB included multiple countries in their samples. No studies have yet explicitly examined the countries ranked as top ten in terms of governance on their earnings quality. The premise is that regardless of the governance quality, the emphasis on the reported earnings makes them susceptible to income manipulation. Therefore, this chapter examines the reported net incomes and net losses in countries ranked as the top ten for governance by the Legatum Prosperity Index™ 2016. Since they were rated highly in the prosperity index, it is expected that their oversight environment would limit such practices. Thus, by doing a comparative study, this chapter would be able to examine the variations in institutional settings that might influence such practices, which would otherwise be held constant in a single-country environment (Lewellyn & Bao, 2017; DeFond, 2010).

LITERATURE REVIEW, THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT

Virtually all managerial activities have a potential effect on earnings, and in that sense constitute earnings management (PCAOB, 2000). According to DeChow and Skinner (2000, p. 248) understanding management's incentive is key to understanding the desire to engage in earnings management. Some

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