Journal of
Risk and Financial Management

MDPI

Editorial

An Unprecedented Time for Entrepreneurial Finance upon the Arrival of Industry 4.0

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Received: 23 September 2020; Accepted: 24 September 2020; Published: 25 September 2020

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Abstract: Enterprises and entrepreneurs in emerging economies face a different set of opportunities and challenges from the fourth industrial revolution, Industry 4.0. This volume comprises a number of analyses on entrepreneurial finance with a focus on the emerging markets, covering topics such as debt financing, stock market efficiency, resource consumption, and sustainable development.

Keywords: entrepreneurial finance; emerging markets; Industry 4.0; sustainable development

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The world today abounds with examples of technological advancements that have generated both opportunities and challenges. The Special Issue "Entrepreneurial Finance at the Dawn of Industry 4.0" of the *Journal of Risk and Financial Management* brings attention to a number of finance topics that are often under-researched in the discussion of Industry 4.0 and its impacts on entrepreneurship. In particular, the issue seeks to better understand entrepreneurial finance in the context of emerging economies where automation and globalization present different risks (Vuong 2018).

Besides corporate finance, the volume considers how entrepreneurial opportunities in Industry 4.0 could re-shape the education and environment of emerging markets. Risk assessment and management in such settings, as the authors have noted, requires paying attention to the cyclical patterns of market inefficiency and corrections, the external equity financing, the consumption and import of resources, and even the potential disruption to existing models due to technologies. In re-evaluating assumptions and old beliefs, the authors have also pointed out that cross-border mergers and acquisitions (CBMAs) do not always have a positive effect on shareholders' welfare in the long run, a finding that diverges from the literature and carries weight in long-term financial planning.

In terms of financial management, the authors included in this issue have examined the sources of firm financing, the financial determinants of firm performance, the trends of cross-border mergers and acquisitions (CBMAs), and the sustainability basis for economic growth. Entrepreneurial debt financing is shown to take different forms, ranging from traditional sources, such as bank loans, venture capital funds, angel investors, and corporate investors, to informal sources, such as loans from family and friends. A study on fluctuations in stock market returns also sheds light on elements affecting financial markets, which in turn may help in predicting financial crises and market crashes.

The articles vary not only in terms of topic discussion but also in their methodologies. First, the use of data, which covers the periods both before and after the dawn of the new technological revolution, provides insights into the kinds of changes that are transforming society and the market. Second, the authors have utilized a variety of models, including the environmental Kuznets curve hypothesis, the adaptive market hypothesis, the propensity score matching (PSM) model, and the differences-in-differences (DIDs) model, in addition to applying frequentist statistics and conducting group interviews and thematic analyses.

In a study on entrepreneurial finance in the English language training market (ELTM), Pham et al. (2020) present empirical evidence for the financing sources of start-ups in this market. The authors show that global edtech start-ups have attracted a three-fold increase in investment in merely one year, from US$55 million in 2018 to US$150 million in 2019. Consistent with this trend, in the particular cultural setting of Vietnam (Vuong et al. 2020), the ELTM is one of the most lucrative segments. The prevailing view among the studied subject is that the growth of this market has been turbo-charged by technologies that are emblematic of Industry 4.0: mobile apps, online platforms, and social networking sites such as Facebook and YouTube. In contrast, the financing mechanism of such start-up efforts in the ELTM is very traditional; entrepreneurs rely mainly on private sources such as family and friends.

Similar to the ELTM, cross-border mergers and acquisitions (CBMA) have also reached a new level of growth since the arrival of Industry 4.0. Ho et al. (2019) explore the wealth effects of CBMA from emerging to developed markets, describing the phenomenon as "when the poor buy the rich." The authors consistently estimate the negative effects of such deals in three-, four-, and five-year event windows, which could potentially reach up to −69% after five years. The non-cash financing method is also shown to have a strong negative wealth effect after three and five years. Such results highlight the complexity of the CBMA and serve to discourage business owners from emerging economies from considering their future M & A in advanced markets.

To understand the wave of companies from emerging markets looking to buy others in developed markets, it is necessary to roll back a little and study how companies from the less developed markets are doing. Here, Vu et al. (2019) shed light on the determinants of enterprise performance through an analysis of nearly 700 firms listed on the Vietnamese stock markets. The authors find that capital intensity is negatively correlated with firm performance. For financial firms, there is a negative association between performance indicators and the age of a firm and average wage per employee. The evidence suggests there is still a high level of reliance on low labor cost and labor-intensive and low-tech production among Vietnamese businesses.

In a different approach to entrepreneurial finance, Koilo (2019) zooms out at the macroeconomic picture to find signs of sustainable development. Using the annual data on GDP, the net inflows of FDI, energy intensity, and the trade openness of 11 emerging economies in Eastern Europe and Central Asia, the author studies the relationship between economic growth and environmental degradation, measured as carbon dioxide (or CO_2) emissions. The findings not only affirm our understanding of a carbon emission Kuznets curve for these emerging economies, but also cast doubt on the differential impacts of the information and communication technology (ICT) sector on the environment; the usage of new technologies is correlated with increased energy consumption, and, subsequently, higher CO_2 emissions. In the wake of Industry 4.0, such empirical pieces of evidence suggest that more investigations are needed to draw any link between technological applications and CO_2 emissions. In the meantime, as part of financial risk assessment and prevention, policies aimed at introducing and developing new technologies in emerging economies should be evaluated carefully before being put into practice.

Lastly, any inquiries into entrepreneurial financing would be amiss without taking into account the stock market and the dynamics of private equity returns. While the stock markets in emerging economies such as Vietnam remain small in scale and trading volume, understanding their behavior prior to the applications of more advanced technologies is of critical importance. In this volume, Tran Trung and Quang (2019) test the adaptive market hypothesis, which was proposed by Lo (2004), in two main Vietnamese stock exchanges by measuring the current stock returns against historical stock returns. To ensure the robustness of the results, the authors run a series of autocorrelation tests—namely, the automatic variance ratio (AVR) test, the automatic portmanteau (AP) test, and the generalized spectral (GS) test—and a time-varying autoregressive approach. They conclude that, because the market efficiency of the Vietnamese stock exchanges varies over time and is influenced by the market conditions, the behavior of the stock market is in line with the adaptive market hypothesis.

With the advent of advanced and automated technologies, companies worldwide face immense pressure to innovate and raise productivity to stay competitive, and, more importantly, afloat. There are undoubtedly many other aspects of entrepreneurial finance in the dawn of Industry 4.0 that are yet to be included in this volume. Nonetheless, through different approaches and outlooks, this collection of articles has altogether contributed to progressing our knowledge of financial risk and management in emerging economies, along with our understanding of all the limitations pertaining to them and the required intellectual honesty (Vuong 2020).

Funding: This research received no external funding.

Acknowledgments: The author thanks the research staff at AISDL (Vuong & Associates, Hanoi, Vietnam) for their support throughout the process.

Conflicts of Interest: The author declares no conflict of interest.

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