

# Accepted Manuscript

A note on multiplicative uncertainty and shareholders' unanimity

Marc St-Pierre

PII: S0304-4068(18)30065-X

DOI: <https://doi.org/10.1016/j.jmateco.2018.06.003>

Reference: MATECO 2248

To appear in: *Journal of Mathematical Economics*

Received date: 22 May 2017

Revised date: 24 April 2018

Accepted date: 6 June 2018

Please cite this article as: St-Pierre M., A note on multiplicative uncertainty and shareholders' unanimity. *Journal of Mathematical Economics* (2018), <https://doi.org/10.1016/j.jmateco.2018.06.003>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



# A Note on Multiplicative Uncertainty and Shareholders' Unanimity

Marc St-Pierre

University of the South, 735 University Avenue, Sewanee, TN 37383 USA

---

## Abstract

In economies with production under uncertainty in which firms invest capital (possibly many types) ex-ante and employ labor (possibly many types) ex-post, we provide an extension of the multiplicative technological uncertainty model of Diamond(1967) that allows for both technological and price uncertainty. This multiplicative uncertainty property is shown to hold if and only if the production functions display Constant Return to Scale with respect to some capital aggregator and the labor inputs. The result extends the rationale for shareholders' unanimity and for the objective of (net) value maximization to a large class of incomplete market economies.

*Keywords:* Investment, Stock-Market, General Equilibrium, Incomplete Markets, Unanimity

*JEL:* D21, D51, D52

---

## 1. Introduction

Economies with an incomplete set of assets allow for disagreements among individuals regarding the expected value of income streams that offer new insurance opportunities, i.e. those that lay outside of the existing asset span. While this property is at the core of important generic inefficiency results (Genakoplos and Polemarchakis (1986); Genakoplos et al. (1990)), it also means that an universally agreeable objective criterion for undertaking risky investment is not readily available. One solution to this conundrum is to provide conditions ensuring that investment never generate truly new insurance opportunities. This point was argued by Ekern and Wilson (1974), who then became important pioneers of this so-called *spanning* literature. Under such conditions, each shareholder uses the existing asset prices to value income or dividend streams. Therefore, the objective of (net) market value maximization using market prices is well-defined and unanimously agreed upon by shareholders, as it would be without market incompleteness. One particular result that falls within this line of reasoning is the multiplicative uncertainty approach of Diamond (1967). Working with a single input (capital), Diamond assumes that the output of each firm is the product of an exogenous term capturing technological uncertainty and of some function of capital, the latter being independent of that technological uncertainty. This guarantees that investment choices always generate a stream of income within the existing asset span. The present note contributes to this literature by extending Diamond's multiplicative uncertainty approach to situations where possibly several inputs are employed ex-post, e.g. labor.

In the present model, dividends depend on exogenous uncertainty about the production functions, or *technological uncertainty*, and on endogenous uncertainty about the prices of these ex-post inputs, or *price uncertainty*.

---

*Email address:* mastpier@sewanee.edu (Marc St-Pierre)

Download English Version:

<https://daneshyari.com/en/article/7367275>

Download Persian Version:

<https://daneshyari.com/article/7367275>

[Daneshyari.com](https://daneshyari.com)