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Does the Miller-Modigliani Dividend Irrelevance Theory Apply to Portuguese Companies?

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Abstract

Miller and Modigliani´s theories have been studied and discussed by many researchers, but are based on optimal market conditions, where there are no transaction costs or taxes involved. These assumptions are not true to any modern market. One of the most famous theories of M-M is the dividend irrelevance theory, where the authors argued that dividends do not make any difference to the share prices, whether paid or not. This theory too was the target of several researchers, some of them defending it, others criticizing it. This article analyzes their theory based on optimal market conditions and after considering the fact that market deals attract transaction costs and taxes, by testing it on the Euronext Lisbon Portuguese Stock Index (PSI) for the period of 2019-2023. The results prove that M-M´s theory does not apply to the Euronext Lisbon PSI, as the prices tend to change for dividend paying companies, between the cum-dividend date and the ex-dividend date.

JEL: G11.

Keywords: *Miller-Modigiliani, dividend irrelevance, PSI, Euronext Lisbon, dividend.*

Introduction

The finance theories proposed by Merton Miller and Franco Modigliani have been widely accepted albeit for academic purposes. One of the most popular is the 1961 dividend irrelevance theory [1] under which the authors argue that dividends are irrelevant to the investor in the company. In simple words, this means that if dividends are paid, the transfer of profits to the reserves will be lower and the value of the company will increase at a lower rate as compared to the transfer of the entire profits when dividends are not paid, which would imply a much faster growth of the value of the company. As the shareholders are the owners of the company, they are indifferent between receiving part of the profits as dividends and having a lower growth of share prices or by earning capital gains on the sale of the shares, when dividends are not paid and the growth of share prices is higher. The theory argues that dividend payments can result in a liquidity crunch and this money is better off reinvested in the company to generate wealth that ultimately reverts to the shareholders. The theory was proposed under highly unrealistic conditions, namely nonexistence of corporate or personal income tax, no transaction costs, perfect capital markets, rational investors, that are generally not applicable in real life situations.

Several authors criticized the theory arguing that dividend payment is highly appreciated by shareholders, who prefer to receive money today than wait for tomorrow and are reassured that the company they own, is profitable [2], [3], while many others argue that dividend is irrelevant as the share prices of companies that do not pay dividends tend to rise faster than those of dividend paying companies [4]. Damodaran [5] also partially defended the theory stating that the crux of the situation is not the payment of dividends today and capital gains at a future uncertain date, but between the payment of dividends today and the change in the share prices today itself.

While both theories have their pros and cons, this article aims at evaluating the dividend irrelevance proposed by Miller-Modigliani (M-M) in the Portuguese stock markets, testing the data of the dividend paying companies that compose the PSI (Portuguese stock index) for the years 2019 to 2023. The study is based on the analysis undertaken by Kowerski & Haniewska [6] in the Warsaw stock exchange for the

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period 2019-2021 in which they admitted that dividends are irrelevant and that M-M´s theory was validated. They considered the payment of taxes and transaction charges in order to have a real-life situation.

In this article, the data was tested using M-M´s assumptions of no taxes and transaction costs and after considering taxes and transaction costs, in order to see if M-M´s dividend irrelevance can be proved, in either situation.

Literature Review

Dividend, from the Latin dividendum[2], is the part of the net profit of the company that is paid to the shareholders, either in cash or in the form of free new shares [7]. While the former is taxed as personal income of the shareholders, the latter is not.

There are many theories regarding dividends, but most of them fall under two categories: the theory of preference for dividends defended by Gordon [8], Lintner [20], [21] and Walter [31] in which it is argued that investors prefer current income to future uncertain returns, or a "bird in hand", as this minimizes the risk of the investment, and the theory of dividend irrelevance proposed by M-M [1] in which they defended the irrelevance of the payment of dividends, as the transfer of the full amount of net profits to the reserves would increase the value of the company over time and thus the share value in the markets.

While both theories and further theories derived from these two main ones have their pros and cons, even after years of research, no general consensus has been arrived at and researchers can often disagree about the same empirical evidence [9].

The vast majority of authors defend the payment of dividends, as dividends are one of the most important decisions of modern enterprises [11] and are valuable signals of the firms´ future profitability [12], in addition to attracting new institutional investors. The theory is further divided into two: The high dividend theory or bird in hand theory advocated by Gordon [8], Lintner [21] and many others and the low dividend theory or tax hypothesis, advocated among others by Brennan [22], that adjusted the famous capital asset pricing model (CAPM) for post-tax earnings.

The greater the number of institutional investors, better the perception of the quality of management of the firm [13]. McCluskey et al. [14] found that in the Irish scenario, dividends influence share valuation, with majority of the fund managers preferring cash dividends to share buybacks. A similar study in Thailand showed that companies tend to pay higher dividends when the largest shareholders are institutions [17]. In South Korea too, foreign institutional investors prefer to hold larger shareholdings in companies paying higher dividends [18]. In their study of Russian oil companies, Eryomin et al. [7] concluded that dividend payments enhance the share prices, especially in the case of stable dividends payment.

Another major point in favor of dividend payment is the agency cost reduction by distributing the free cash flow to the shareholders as dividends, instead of leaving it at the mercy of the management to invest it at times recklessly, even in negative return projects [16], [19].

Studies conducted by Litzenberger and Ramaswamy [32], [33] shows that shareholders are at a loss by receiving high dividends, mainly due to taxes levied by the government, advocating a policy of low dividends payment by companies. Their studies were corroborated by Poterba and Summers [34] in the U.K. and by Kalay and Michaely [35] and Blume [36]. Keim [37] also suggested a yield-related tax effect of dividends.

While progressive companies may withhold dividends and reinvest the cash that would be distributed for reinvestment, as internal financing is always cheaper than other forms of financing [15], Black and Scholes [23], using a modified CAPM model proved that for the period of 1936-1966 in the U.S., the dividend yields were not significantly different from zero. Several other studies also proved the dividend irrelevance theory,

[2] Dividendum: What is to be divided.

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including those of Miller and Scholes [24], Hess [25], Miller [26] and Bernstein [27]. Recently, Kowerski and Haniewska [6] were able to prove M-M´s theory in the Warsaw stock exchange, but many other studies in the past did prove otherwise, a few being Ball et al. [28] in Australia, Siddiqui [29] and Casey and Dickens [30] in the U.S. banking sector.

Njoku and Lee [38] concluded that while cash dividends had a positive impact on Tobin´s Q and market-to-book ratios, the policy was inconsistent among Chaebols[3] and smaller enterprises, in South Korea.

Black [10] summarized the lack of consensus by stating "the harder we look at the dividends picture, the more it seems like a puzzle, with pieces that just do not fit together", while Driver et al. [39] concluded that companies may change their dividend policy based on investor pressure, industry takeover threats, short term trading and higher board equity compensation.

Methodology

The Euronext Lisbon stock exchange´s index PSI (Portuguese Stock Index) is composed by the largest companies quoted on the exchange and that have a minimum market capitalization of 1000 million euro. These are the most traded and volatile companies and the index was launched on the 31st of December 1992. The market cap of the index companies is adjusted by free float. While the initial index had 20 companies, at present it is composed of only 16 companies[4]. Initially it was known as the PSI-20 and at present it is just the PSI.

Given the fact that the remaining companies in Euronext Lisbon are hardly traded and are not very regular in the payment of dividends, this study was limited to the dividends and historical prices of the PSI listed companies, for the period 2019-2023.

The number of companies that paid dividends for the period 2019-2023 are listed in table 1:

Table 1: Companies that paid dividend year-wise

Year	No. of companies that paid dividends
2019	7
2020	12
2021	15
2022	14
2023	15

Source: https://pt.investing.com/equities-historical-data

Except for 2019 and 2020, when the Covid-19 pandemic peaked in Portugal, the number of dividends paying companies in PSI remained almost constant.

For this study, two hypotheses are proposed:

H1: The classical M-M dividend irrelevance theory is applicable to the PSI composing companies

[3] Chaebol: Large family owned business conglomerate in South Korea

[4] https://live.euronext.com/pt/product/indices/PTING0200002-XLIS/market-information#index-composition

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For H1, the closing share price on the last day before the payment of dividends was taken as the cum-dividends price[5] (P_{t-1}) and the closing share price of the day of dividend payment was taken as the ex-dividends price[6] (P_t).

Using the classical stock returns formula, the returns (R_1) for each year were calculated per dividend (D_t) paying company:

$$R_1 = \frac{(P_t - P_{t-1}) + D_t}{P_{t-1}}$$

For all the companies, the daily average rate of return was calculated year-wise, and then, using R software[7], the student´s t-test was calculated at a level of 0,05 to see if the results differed significantly from 0, in order to prove the null hypothesis. If $p > 0,05$, it means that M-M dividend irrelevance theory is applicable in PSI composing companies, under classical conditions of non-existence of transaction costs and brokerage, as there is no reason to reject the null hypothesis.

H2: The classical M-M dividend irrelevance theory considering transaction costs and taxes is applicable to the PSI composing companies

For H2, the closing share price on the last day before the payment of dividends was taken as the cum-dividends price (P_{t-1}) and the closing share price of the day of dividend payment was taken as the ex-dividends price (P_t). P_t was adjusted by 2%[8] (P_t x 0,98) considering the transaction costs on the sale and P_{t-1} was adjusted by 2% (P_{t-1} x 1,02).

Using the classical stock returns formula, the returns (R_2) for each year were calculated per dividend (D_t) paying company:

$$R_2 = \frac{(P_t - P_{t-1}) + D_t}{P_{t-1}}$$

If $(P_t - P_{t-1}) > 0$, implying a capital gain, it was calculated for the post-tax value[9] (72%) and D_t tax was also calculated at the liberal tax rate of 28%. If $(P_t - P_{t-1}) \leq 0$, the value was considered as 100%.

For all the companies, the daily average rate of return was calculated year-wise, and then, using R software, the student´s t-test was calculated at a level of 0,05 to see if the results differed significantly from 0, in order to prove the null hypothesis. If $p > 0,05$, it means that M-M dividend irrelevance theory is applicable in PSI composing companies, under classical conditions modified to consider the existence of transaction costs and taxes on capital gains and brokerage, as there is no reason to reject the null hypothesis.

Results and Discussion

Considering the data collected for the years 2019-2023 for the companies composing the PSI, the results of the student´s t-test for each of the hypotheses of the study, the results are depicted in the tables below:

Table 2: Results of student´s t-test statistic considering M-M classical dividend irrelevance theory (R_1)

[5] The cum-dividend date was taken as the last trading date before the dividend payment date.

[6] The ex-dividend date was taken as the date when dividend was paid.

[7] https://www.r-project.org

[8] Average brokerage and related costs of several brokers.

[9] Share capital gains tax is 28% in Portugal.

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YEAR	STUDENT´S T-TEST	p-VALUE	ACCEPT NULL HYPOTHESIS?
2019	-9,790411	0,00000326	Reject
2020	-13,90456	0,0000000126	Reject
2021	-21,40694	0,000000000002	Reject
2022	-16,5445	0,000000000205	Reject
2023	-19,0084	0,000000000010	Reject

Source: Own compilation

Without considering transaction costs and taxes, the total return on the stock increases. In many of the company years, it was observed for several companies, that the ex-dividends closing price was higher than the cum-dividends closing price, implying that the demand for the shares increased as soon as the dividends were received.

H1 is thus rejected, as the p-value for every year (2019-2023) is < 0,05 and the null hypothesis cannot be accepted. This means that M-M´s dividend irrelevance theory does not apply for PSI composing companies, when transaction costs and taxes are omitted.

Table 3: Results of student´s t-test statistic considering M-M classical dividend irrelevance theory with transaction costs and taxes (R_2)

YEAR	STUDENT´S T-TEST	p-VALUE	ACCEPT NULL HYPOTHESIS?
2019	-2,8987	0,013691	Reject
2020	-4,0740	0,000919	Reject
2021	-6,9774	0,000003	Reject
2022	-2,9391	0,005755	Reject
2023	-4,0874	0,000555	Reject

Source: Own compilation

After considering transaction costs and taxes, the total return on the stocks decrease by the amount paid to the broker and the government. In many of the company years, it was observed for several companies, that the ex-dividends closing price was higher than the cum-dividends closing price, implying that the demand for the shares increased as soon as the dividends were received.

H2 is thus rejected, as the p-value for every year (2019-2023) is < 0,05 and the null hypothesis cannot be accepted. This means that M-M´s dividend irrelevance theory does not apply for PSI composing companies, when transaction costs and taxes are considered.

Conclusions

While the volatility of the Euronext Lisbon is quite low, it makes sense to buy shares between the dividend announcement and the last day they remain cum-dividend and to sell them when they become ex-dividend, or to hold them for the long term, or in other words, to try to speculate during these time periods.

M-M´s theory of dividend irrelevance is not seen under both conditions, the perfect market without imperfections (transaction costs and taxes) (table 2) or after considering the transaction costs and taxes (table 3), under the Portuguese scenario.

Whatever the case may be, investors should exercise their own discretion and common sense, as this study does not imply that they can always gain from speculating between the dividend announcement date and payment date, as this is based on a statistical inference of all the companies that compose the PSI. There could be cases where the same company´s returns tendency changes in two consecutive years.

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Limitations and Further Study

This study was undertaken for an efficient market (Euronext Lisbon), which is part of the Euronext. Under an efficient market, all the available information is rapidly absorbed by the stock prices and thus, an investor cannot make abnormal gains by trading in the shares.

The PSI is limited to a meagre 16 stocks that are the most traded and that pay regular dividends, so the size of the sample of this study is quite small. Even if all the companies traded on Euronext Lisbon were included in the study, the results would not have differed much, given that many of those companies are very irregular in the payment of dividends. Further, in this study, there was no separation of the Covid-19 pandemic period and the post-pandemic period.

The results obtained in a similar study undertaken in bigger exchanges could differ significantly.

It is suggested that the study be extended to other sister concerns of Euronext Lisbon and eventually, the results among them could be compared.

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