A Work Project, presented as part of the requirements for the Award of a Master's degree in Management from the Nova School of Business and Economics.

The Impact of the economic environment on VC investment and implication for equity financing – evidence from Portuguese VC

Verena Karst – 48691

Work project carried out under the supervision of:

Marco Fernandes

16/12/2022

Abstract

Current market dynamics are driven by geopolitical tensions and macroeconomic tightening, influencing the venture capital market and financing decisions. By using an interview-based approach the paper aims to determine the Portuguese venture capital sentiment and infer implications for the financing decisions for Equity and Convertible Notes. Results indicate that deal flow and portfolio investments in Portugal remain resilient. The most significant risk is the continued access to foreign growth capital. Current market dynamics cause Equity investments to decrease due to valuation difficulties. To compensate for greater risks VCs are more engaged with portfolio companies' operations. Investors use Convertible Notes to defer valuation and increase the runway for late-stage ventures. Deal terms are altered slightly to benefit investors, who avoid imposing excessive terms to not inhibit future growth trajectory in subsequent funding rounds.

Keywords: Venture Capital Sentiment, Portugual, Entrepreneurial Finance, Equity Financing, Convertible Notes

This work used infrastructure and resources funded by Fundação para a Ciência e a Tecnologia (UID/ECO/00124/2013, UID/ECO/00124/2019 and Social Sciences DataLab, Project 22209), POR Lisboa (LISBOA-01-0145-FEDER-007722 and Social Sciences DataLab, Project 22209) and POR Norte (Social Sciences DataLab, Project 22209).

Table of content

1. Background

1.1. Research question and objective of the paper

Current market dynamics have disrupted the venture capital (VC) market. Ten years of continuous deal expansion with stellar valuations and arbitrary returns come to an abrupt end in 2022. Rising uncertainty in times of macroeconomic and geopolitical tension turns the previous investment behavior of VC firms (VCs) upside down. Fast-growing companies with high cash burn and no path to profitability will experience more problems with financing in times of uncertainty and will most likely suffer valuation losses (Interview Consensus, 2022).

The most prominent example is Klarna. The buy-now-pay-later vertical lowered its valuation by $39bn in its last funding round in 2022. Investors turn away from risky and potentially overpriced assets in the current economic climate. Macroeconomic and geopolitical issues, as well as market-specific challenges, such as a decline in consumer finance, resulted in a distorted valuation in the last financing round in 2022. Klarna is not an isolated case: Affirm Holdings Inc. is Klarna's largest competitor in the U.S. and has experienced a similar devaluation (Dakers, 2022). Cases like Klarna raise the question of how macroeconomic challenges and geopolitical tension shape the current VC sentiment and ultimately change the financing decisions.

This paper deals with the impact of the current economic environment on VC investments. The paper aims to portray the overarching VC sentiment and identify structural trends in external financing decisions of new ventures resulting from changing market conditions during economic downturns. A particular emphasis is placed on the Portuguese VC market and the insights and perceptions of some of the largest VCs. Interviews (for a detailed Overview of the Expert Interviews, see *Appendix A: Figure 1*) are conducted with *Armilar Venture Partners*, *Chamaeleon*, *Iberis Capital*, *Indico Capital*, and *Portugal Ventures*.

In addition to this primary objective, the paper provides a theoretical foundation of venture financing in the form of a taxonomy of external financing instruments. The paper aims to create a link between the current market challenge and the implications for funding rather than providing a guideline to receive financing in unprecedented times.

1.2. Structure and methodology of the paper

This chapter provides information about the approach chosen to answer the research question. The paper's relevance is presented within a short introduction (1), and the methodology is outlined. After that, the first research question is referred to, and the current picture of recent VC development is captured (2). The starting point of the central hypothesis is a changed market situation. This change is described in terms of the macro environment and the geopolitical situation in Europe. Subsequently, recent VC developments are highlighted, and noticeable market trends are derived. A definition of the Portuguese VC ecosystem helps to identify distinctions from the general market development. Finally, market trends and features for the Portuguese market are synthesized to capture the sentiment of the Portuguese VC market.

After this, the implications for external financing instruments are discussed in the paper's individual sections (3, 4). Through a definition, the main characteristics of equity financing and convertible note financing are highlighted, and strengths and weaknesses are identified. Finally, the link to the current VC sentiment is made, and changes in equity and convertible note financing in Portugal are presented. Finally, the concluding remarks (5) summarize the main contents of the paper. The work is rooted in extensive research on current trends in the VC market. As the topic strongly references the current VC sentiment, such as funding problems they face due to the current market conditions, information was captured through existing surveys, news articles, and blog articles posted by start-ups and VCs. Coupled with funding data from Dealroom and Pitchbook, current funding trends were identified, serving as the paper's basis. The research objective was centered around the Portuguese market. For this purpose, interviews were held

with the leading VCs.

In total, twelve hypotheses are formulated (for a detailed breakdown of the hypotheses, see *Appendix A: Figure 2*) and answered in the paper. Four of the hypotheses relate to general VC sentiment. Four hypotheses relate to each development of external financing instruments, namely equity financing and venture debt financing, focusing on convertible notes. The hypothesis-based approach allows for examining the overarching research question in the context of different starting points. It provides the necessary structure to penetrate the subject quickly and efficiently. Moreover, the approach allows a tangible output where an explicit confirmation or rejection of the initial hypothesis answers the research question. The inductive approach thus helps to obtain make a general conclusion about the future VC market development based on specific research observations. (Rasiel, 1999)

Based on the hypotheses, subsets of questions were derived to obtain an expert assessment of future development. A total of 40 open questions were collected and compiled in an interview guideline. The interview guide is a basis for conducting five semi-structured interviews with leading VC experts from Portugal. The industry experts belong to the leading VC funds in Portugal and bring years of experience in financing new ventures. The interviews were all scheduled for one hour and were conducted online. All interviews were recorded and subsequently transcribed. The interview contents were combined in a consensus to harmonize relative market assessments.

2. Financing environment and market conditions

2.1. The macroeconomic and geopolitical environment in Europe

The following chapter describes geopolitical and macroeconomic developments constraining the current investment environment. It derives a shared understanding of current market dynamics shaping new VC trends.

The COVID-19 crisis has wounded the global economy in 2020 and 2021. Recent geopolitical turbulences reopened economic wounds inflicted by the pandemic and put new pressure on European markets (International Monetary Fund, 2022). Geopolitical tensions and macroeconomic development constitute a rising threat to the investment climate (for a detailed breakdown of new market dynamics, see *Appendix B: Figure 1*). The geopolitical crisis has caused a severe energy crisis in Europe, a sharp increase in the cost of living, and decreased economic activities. With the invasion of Russia into Ukraine in March 2022, supplies of oil, gas, metal, and grains collapsed. This supply shock caused a 129% spike in natural gas prices and a 19% increase in commodity prices between February and August 2022 (International Monetary Fund, 2022). The price increase from the energy crisis trickled down to other commodities until it reached the end consumer due to the rising cost of living. The latter reacts with restrictive consumer behavior, which makes it more difficult for companies to acquire customers and restrains economic growth (EIF, 2022).

Additionally, the Chinese government's zero covid policy and increasing protests in production facilities continue to exert pressure on global supply chains. Logistical challenges, such as shipping delays caused by the worldwide pandemic, have been partially contained. However, the ongoing trade war between China and the USA continues trade restrictions impede the global flow of goods (IHS Markit, 2022). Therefore, the expectation remains that global shortages continue to cause operational problems for companies and further slowdown expansion (International Monetary Fund, 2022).

Financing is becoming more challenging to obtain because of tighter monetary conditions, such as rising inflation and interest rates, which eventually dampen the investment climate. The COVID-19 repercussions of already difficult supply-chain situations are accelerated by soaring commodity prices leading to a significant increase in inflation of 9.2% and 8.1% in 2022 in the EU and the U.S., respectively. Inflation is expected to peak in 2022 (for a detailed breakdown

of the development of inflation, see *Appendix B: Figure 2*) but to remain elevated during 2023 (International Monetary Fund, 2022). Central banks are gearing up to restore price stability by tightening monetary conditions, driving interest rates up to new highs to subjugate inflation gradually. The Federal Reserve Bank's (FED) hike in the key interest rate in the United States resulted in the European Central Bank (ECB) discontinuing its zero-interest-rate policy. In the third quarter of 2022, the interest rate in the EU is 2.0% and is projected to grow higher (European Central Bank, 2022). The market's increasing uncertainty compels investors to wait for further developments before taking action. While the world's economies are working hard to restore economic stability, it is impossible to predict the magnitude of further economic challenges without a stabilizing geopolitical situation. This creates a high level of market uncertainty and discourages investment (Interview Consensus, 2022).

In conclusion, the geopolitical tension and eroding macroeconomic conditions have generated a new market dynamic that makes the investment climate more challenging. Already constrained world economies are coping with supply chain disruptions and slowly recovering economic activities but now face higher inflation and tightening financial conditions shown through rising interest rates and increasing commodity prices.

2.2. Recent Venture capital development in Europe

The following chapter highlights quantifiable developments in deal activity and capital allocation for the European VC market. In conjunction with macroeconomic and geopolitical findings, this provides first insights into how the VC market in Europe is responding to the new market dynamics.

The startup market has shown impressive growth and shows significant size. From 2015 to 2021, the volume of VC financing investments increased by 32.8% annually (CAGR 2015-2021). In 2022, the value of European startups exceeded €3.1tn (Dealroom, Silicon Valley Bank, 2022). Likewise, VC deal activity reached a new all-time high with 12,191 deals and a

total deal volume of €bn 104. A significant proportion of the growth trajectory is related to the company's substantial valuation gain, as shown by slower growth in deal count compared to deal volume. The number of transactions increased at a moderate rate of 9.9% (CAGR 2015-2021). The appreciation in valuations was particularly evident in the COVID-19 period when the deal value increased by 110.8% year-over-year (YoY) (Pitchbook, 2022). The volatile environment resulting from the COVID-19 pandemic led to the embrace of greater digitalization. The accelerated shift towards digital business processes propelled the tech-driven VC market forward as an asset class (Joseph Amankwah-Amoah, 2021). Due to a faster adaption of digital business models, projections were achieved in a significantly shorter period. Furthermore, easy access to cheap capital and investors' fear of missing out led to inflationary valuation multiples. Collectively, this behavior led to an overriding increase in company valuations (Interview Consensus, 2022).

In 2022, this positive trend was breached. European-based public startups received a devaluation of 14.3% (Dealroom, Silicon Valley Bank, 2022). Furthermore, significantly less VC money is expected to flow into the market in 2022. The deal value and the deal count are projected to decline by 26.5% and 35.0%, respectively, which indicates a restrictive investment behavior. Investors allocate the most significant share primarily to follow-on investments. While in 2021, c. 10% was invested in new startups, VC primarily made follow-on investments in 2022. The share of follow-on VC investments increased by 2.5% to 92% of total investments in 2022. The priority of VCs is thus the follow-through financing of their own portfolio companies to extend the runway of the invested companies at an early stage and thereby make them more resilient to crises (Pitchbook, 2022).

In uncertain market conditions, significantly fewer businesses can acquire financing. However, high-quality startups still have access to large financing rounds, as indicated by the 35% decline in deals and the 13% increase in the average transaction value. Particularly noteworthy are angel

and seed investments, whose average ticket size increased by 40.9%. Therefore, valuations of angel and seed stage companies seem significantly more resilient, and VCs are inclined to support these companies in unprecedented times. Furthermore, the preference for angel and seed stage companies appears to be favored by decreasing exit multiples. A sharp decline of the total exit value by 75.8% to €33.6bn puts pressure on the valuation of late-stage startups (Pitchbook, 2022). In combination with derated trading multiples of public peers, lower valuations are now achieved, and exits are postponed.

Consequently, VCs allocate a higher share to angel and seed investments. Their valuations are significantly more protected, as they are largely detached from financial multiples, and metrics such as the total addressable market (TAM) are more important. Hence, there is a deferring effect, whereby angel and seed investments are jeopardized when larger funds' capital for subsequent financing rounds fails to materialize (Interview Consensus, 2022).

Since the beginning of 2022, fund sizes have remained stable, and capital commitments have not ceased. Based on current projections, the volume of funding raised can once again be increased compared to the previous year's level. In the year's first half, funds totaling €bn 19.3 were raised (Dealroom, Silicon Valley Bank, 2022). Only in the last quarter did capital commitments seem to dry up, as VC funds face challenges in fundraising due to the worsening macroeconomic environment. Climbing interest rates and rising inflation levels complicate the fund-raising climate. Furthermore, limited partners are showing greater risk aversion. Capital allocation is changing in favor of other asset classes, and more investors are withdrawing from the VC market. In particular, the willingness of banks and insurance companies to invest in the VC market has decreased significantly since the Ukraine conflict (EIF, 2022). Thus, a record of dry powder raised in the first half of 2022 remains crucial to transition to a potential funding downturn.

2.3. Venture capital trends in Europe

The following chapter will highlight the VC trends in the European market. Due to the current market conditions, VC sentiment has altered, and new trends and behaviors are emerging. A slump in the public markets is exerting pressure on the VC market and diminishing multiples, resulting in declining valuations of startups (Interview Consensus, 2022). As a result, the initial investment in VC has become more restrictive. It is expected that the supply and demand for VC financing will continue to diverge - an imbalance that will create new market dynamics (EIF, 2022).

The aforementioned market sentiment caused changes in three different areas of VC. VCs are navigating through uncertainty by a selected deal flow *(1)*, focusing on their *portfolio (2),* and higher *fund operation (3)*. These trends are shown in *Appendix B: Figure* and described below. It is evident that a conservative investment approach influences the current deal flow (1) of VCs. In this context, new selection criteria form the foundation of the investment decision. In recent years, high-growth startups with extensive cash burns (e.g., quick commerce startups) were on the rise. Low capital costs enabled the financing of these ventures, and a sequence of mega funding rounds with enormous increases in value rewarded this risk financing. With rising interest rates, the associated preference for alternative asset classes, and a generally higher level of uncertainty in the market, scalability is no longer the only decisive factor (Interview Consensus, 2022). Given the current market environment, VCs are increasing screening efforts for new investments and are basing their selection criteria on financial criteria. Valuation and deal terms remain the most important factor, followed by cash-generating capacity and profit-ability (EIF, 2022). Startups must therefore be able to demonstrate a clear path to profitability in their investment proposals. Another selection criterion, which is undisputed but has become even more critical in the current market environment, is an experienced management team. It is their responsibility to address market-related challenges, such as difficult customer

acquisition and retention and the shift in consumers, and to materialize the business plan presented, thereby enabling successful scale-up (Interview Consensus, 2022).

The application of the selection criteria described above has led to the emergence of a preference for certain startup phases. A look at deal activity in the last quarters shows a shift in the financing phases. In particular, deal activity for angel and seed investments and late-stage startups has remained stable, whereas mid-stage ventures are experiencing significantly higher financing problems (Pitchbook, 2022). This trend is contrary to the subjective perception of VCs, of which only 35% state a preference for a specific venture stage (EIF, 2022). The explanation for the discrepancy is that the preference is merely implicit in the new set of selection criteria. Using financial KPIs and a closer look at the founding team, higher-quality startups will be filtered out (escape into quality). These measurable results and experienced founders are concentrated in the late-stage phases of the startups.

A second startup phase that shows a higher deal flow is that of angel and seed investments. Within the last quarter, more capital was allocated in this area (Pitchbook, 2022). In addition, significantly more seed funds were closed in the current year, 2022 (Crunchbase, 2022). Three reasons favor increased investment in the seed segment. On the one hand, valuations in this area are significantly more resilient, as they are more detached from financial performance and thus come under less pressure from the decline in the public markets. On the other hand, milestones materialize much faster, and even minor product improvements lead to a significant increase in value, whereas latelate-stagepanies have to show much higher growth to achieve an equivalent increase in valuation (Interview Consensus, 2022). Finally, the ticket size of angel and seed investments is significantly smaller, which allows a higher investment volume. This provides diversification effects to be realized and the unsystematic risk of the ventures to be mitigated (Seedrs, 2022). In summary, the change in deal flow behavior indicates that the overall market environment currently entails a higher degree of systematic risk. VC addresses this

problem by reducing the unsystematic risk through increased screening and due diligence and by diversifying its funds with smaller seed investments.

Investing in new ventures, VCs are also confronted with information asymmetry, which increases the risk even further. Consequently, VCs are concerned with follow-on investments (2) and are increasingly making follow-on investments. Due to reporting and regular board meetings, information asymmetry is reduced. The founders are less inclined to exploit their information advantage in new financing rounds. The risk of adverse selection is thus reduced in the follow-on financing of portfolio companies, as the VCs have more precise insight into the actual quality and performance of the venture. They know the winners of their portfolios and are interested in establishing successful follow-on financing (Nofsinger & Wang, 2011).

Furthermore, venture capital is interested in the successful existence of portfolio companies to record a positive performance in fund reporting. In addition to the financial concerns that exist for the portfolio companies in securing equity financing and liquidity, market-specific and operational challenges also affect the VCs. Due to the current market situation, supply chain disruptions and rising labor costs are occurring, leading to operational difficulties in the venture and making further scalability difficult (EIF, 2022). Previously, VCs only provided strategic direction through regular board meetings (National Bureau of Economic Research, 2016). Under current market dynamics, there is a shift towards more hands-on guidance and operational involvement of VCs. Stronger cooperation is particularly evident in the increasing number of board meetings (Interview Consensus, 2022).

Another noticeable trend is the decline of available exit options. While there was still a record number of buyouts and public listings in 2021, these exit channels are less attractive due to the current market conditions. VCs with an extensive portfolio of late-stage startups must plan exits in advance (Pitchbook, 2022). In conjunction with a challenging fundraising climate, the current market dynamics are associated with more fund operations.

In the past six months, a record number of dry powder were raised, but it is unclear whether committed funding will materialize. During the dot-com bubble, for example, limited partners defaulted on their committed capital. Furthermore, VCs do not have to make the raised capital available to the market immediately but can manage it more restrictively. As a result, the market must be able to transition through the economic downturn even with less capital. (Rosenbloom, 2022). The impression that raising new funds is more complex than before is also reflected in the survey of VCs. They state that limited partners now have a higher risk aversion and that more limited partners are withdrawing from the VC market due to rising interest rates and a higher level of inflation. More difficult fundraising is also reflected in the long-term financing of portfolio companies and will further increase the financing deficit (EIF, 2022).

In conclusion, the current market dynamics have created a new investor-friendly environment. VC investors will reinvest in high-quality angel and seed startups and benefit from good entry opportunities. However, the primary focus will be on the follow-on investments of the portfolio. On the other hand, the investment opportunities that arise are also associated with a higher workload. VCs will have to deal increasingly with their portfolio companies operational and market-driven challenges. Furthermore, fundraising is more difficult as a higher risk aversion is emerging. Ultimately, this will lead to fewer startups receiving funding, and only selected VC investors will have access to sufficient capital to maintain the successful momentum of the last ten years.

2.4. Venture capital ecosystem in Portugal

In the following chapter, the VC system will be described in terms of its attractiveness for talent, the ease of doing business, and the (venture) investment environment. A refinement of the characteristics will highlight advantages and serve as a basis for assessing the Portuguese market's resilience to the overarching VC trends.

Portugal attracts talented founders and digital nomads due to its digital connectivity, vibrant culture, and warm climate. Portugal has a high exposure to digital subjects. As such, Lisbon hosts the Web Summit, the world's leading tech conference, bringing together thousands of founders and investors for networking purposes. Lisbon and Porto are both part of the Scale Cities Alliance, an ecosystem of collaborating cities to create Europe's most connected tech hub (Dealroom, 2021). Additionally, Portugal is one of the oldest countries in Europe, offering a rich history and culture, good environmental conditions, a diverse landscape, and a Mediterranean climate. These pull factors make Portugal very attractive to foreigners.

Portugal is 39th in the World Bank's Doing Business Report of 2020. This indicates that its regulatory environment is conducive to business operations, making it one of the most attractive countries for new ventures (World Bank Group, 2020). To promote the ease of doing business, the Portuguese government has taken some regulatory measures to encourage startup activity: *Startup Portugal*, the *Golden Visa Program*, and the *200M Co-investment Fund*. *Startup Portugal* was created in 2016 as part of a national strategy to foster entrepreneurship through increased structural support, funding, and internationalization efforts (Startup Genome LLC., 2022).

The *Golden Visa* is a program to achieve residency by investment (RBI). This program offers a strategic benefit for a country competing in the global economy while allowing the investor to attain residency or citizenship in the respective country (Surak & Tsuzuki, 2021). RBI programs are used as a tool in migration policy aiming to attract economic resources (Elo, 2021). Since its introduction in October 2012, the Golden Visa program has generated around €5.8bn in investments (Portugal Golden Visa, 2022). This shows that it is very beneficial for Portugal, bringing in large investment sums, entrepreneurial activity, new ideas, and a stronger internationally focused mindset.

The *200M Co-investment Fund* aims to promote cross-border activity and draw international entrepreneurs, startups, and investors to Portugal. As such, it seeks to acquire technical and commercial expertise to support more robust innovation, growth, and internationalization plans. It covers investments between the seed to Series B round for the verticals of digital and IT, life science and biotechnology, and tourism. To attract investors, the fund matches up to 100% of investors' investments allowing investors to share their risk with 200M (200M Coinvestment Fund, 2022).

The last factor essential for the Portuguese VC ecosystem is a healthy investment environment. The previously mentioned government initiatives are highly beneficial for this factor as well. This comes in significant interdependence to the setup of Portuguese VC players. The VC environment for Portugal is depicted in *Appendix B: Figure 4*.

The country's six largest VCs cover over 85% of the market share and focus on different investing stages, with ticket sizes ranging from €100k to €10m. Faber Ventures focuses on pre-see and seed stages in the digital and environmental sectors with ticket sizes of €100k to €1.5m (Faber Ventures, 2022). Chamaeleon, a U.S.- and Portuguese-based VC, focuses on tickets between €1m to €5m in globally oriented ventures in the seed and Series A stage (Chamaeleon, 2022). Portugal Ventures, part of the Banco Portugues de Fomento Group, is a public VC focusing on pre-seed, seed, and Series A investment stages (Portugal Ventures, 2022). As a public VC, Portugal Ventures follows a public mission and focuses on sustaining verticals. Their investment approach is intended to support under-represented verticals. This approach was particularly evident during COVID-19, when they invested heavily in the tourist industry. (Interview Consensus, 2022). Indico Capital Partners, Iberis Capital, and Armilar Venture Partners focus on early investment stages with ticket sizes up to €10m. Indico Capital and Armilar Venture Partners are high-tech-focused. (Indico Capital, 2022) (Armilar Venture Partners, 2022). Otherwise, the named VCs' investments are very diversified.

This shows that the Portuguese VC environment focuses on startups in their early investment stages, as the VCs covering the market need the fund sizes to cover larger investments. Portuguese VCs partner and co-invest with international investors when participating in larger and growth-stage investments (Interview Consensus, 2022).

In conclusion, it can be examined that Portugal offers one of the most favorable environments for new ventures, and attracts new talent, and innovative business ideas. However, it is small and highly dependent on governmental programs and international funds. The Portuguese VC market is still in its infancy and emerging, consequently, a focus on startups in the early lifecycle is recognizable. Due to Portugal's limited aftermarket new ventures are required to follow a global approach. Consequently, they adopt an international-first strategy earlier in their lifecycle, which can be a more efficient path to success (Startup Genome LLC., 2022). The presence of five unicorns in 2022 indicates that Portgual has a thriving venture capital ecosystem, as it has the highest unicorn density in southern Europe (ECO News, 2021).

2.5. Venture capital sentiment in Portugal

The previous chapter identified trends in the European VC market. In addition, the core elements of the Portuguese ecosystem were highlighted. The following section brings the two parts together and provides information on the current development and sentiment of the Portuguese VC market.

The development of the Portuguese VC sentiment moves greatly with the European market due to the close entanglement and dependence on foreign venture capital. Unique characteristics arise from political legislation and individual locational advantages.

According to the framework introduced in *Chapter 2.3 – Venture capital trends in Europe*, intersections with the European movements and the corresponding risk for the VC market in Portugal can be determined based on three areas: *deal flow (1), portfolio (2),* and *fund (3)*. The

extent to which these trends apply to Portugal and the corresponding risk is shown in *Appendix B – Figure 5*.

In times of economic uncertainty, investors choose a distinct set of selection criteria. They prioritize a capable management team and startups whose business model shows both potentials for cash-generating capacity and profitability and has a certain scalability potential (EIF, 2022). These criteria remain crucial when applying these selection criteria to the Portuguese market. The generated attractiveness of Portugal as a hub for digital nomads and qualified founders proves to be a great advantage. Legislative and fiscal measures have fostered a favorable environment for startups, and the southern climate attracts capable talents (Interview Consensus, 2022).

Additionally, startups are required to demonstrate a path to profitability. Increasing global instability has prompted VCs to prioritize runway extension. Portuguese VCs value if profitability and cash-generating capability are envisaged in the business plan. The biggest issue for Portugal continues to be the scalability of the business. While growth is already of utmost importance in the European market, its significance in Portugal is even greater. This is due to Portugal's limited sales market, which makes it challenging to break even despite a high adoption rate in the domestic market. Therefore, Portuguese startups are expected to have immediate global scalability. Thus, the consequences of changing market environment to deal flow pose a moderate threat to the development of the Portuguese VC market, as it is well equipped to meet evolving selection criteria (Interview Consensus, 2022).

The second area concerns the portfolio, which VCs are increasingly focussing on in the current market environment. Their primary attention is to provide follow-on financing for the companies to keep the runway high and to ensure liquidity (EIF, 2022). This is critical as sufficient liquidity is a decisive competitive advantage in the current market environment. In addition to adequate funds, increased venture capital participation is required. VCs have a stronger

relationship with their portfolio firms and assist them with strategic counsel and newly emerging operational difficulties. This trend is noticeable in Portugal as well. The interviewed VCs engage in a far more active dialogue with their portfolio companies. A significant increase in board meetings evidences this. Regarding operational engagement, the Portuguese market has already anticipated this, as VCs have historically been more involved in day-to-day business operations than in the average European market (Interview Consensus, 2022). It was also observed that the exit environment had dwindled significantly. Due to poor public markets, there were notably fewer IPOs. Eroding valuations also led to the postponement of further exits. This puts pressure on later-stage startups and causes their valuation and funding to stagnate (Pitchbook, 2022). Portugal is only affected by fewer exit opportunities to a limited extent. Its startup ecosystem is less mature. The VCs have a clear focus on early stage companies, and the pressure from lower exit multiples will affect the industry less strongly. Instead, the Portuguese VC market is dependent on foreign venture capital, which closes the gap to further growth capital. Domestic VCs act as co-investors in the more mature financing rounds and play a subordinate role in the exit (Interview Consensus, 2022). Consequently, focusing on the portfolio is associated with low risk for the Portuguese VC market.

Considering fund operations, it is evident that the present market condition makes fundraising far more complex. Increasingly risk-averse limited partners retreat from the market (EIF, 2022). This pattern is also seen among Portuguese VCs. Four of the five VCs interviewed indicate that the fundraising climate has become much more challenging. Large, prominent VC companies with access to attractive deal flow likely avoid encountering these issues. The limited partners must make their funds available for subsequent fundraising rounds to contribute to their funds. Thus, they have managed to secure the next rounds. Smaller and regional funds, such as the Portuguese, face a different predicament. They rely increasingly on individual contributions, which are becoming increasingly difficult to obtain. In addition, a substantial portion of the

currently committed capital is owing to regulatory incentives and government contributions. The golden visa was a significant fundraising incentive. Therefore, the future fundraising climate in Portugal is highly dependent on public funding and the regulatory landscape. With the currently under-discussion termination of the golden visa and uncertainty about the continued existence of the 200m fund as well as further contributions from the European Investment Fund, the risk associated with fundraising increases dramatically (Interview Consensus, 2022).

In conclusion, the patterns of the European VC market have an impact on the Portuguese market, as it is closely entangled. A change in deal flow due to shifting selection criteria offers a minimal threat to Portuguese VCs; the increased portfolio work of VCs is also not particularly threatening, given that VC companies were already substantially invested. Fundraising-related access to foreign Investors remains the most significant threat.

3. Equity financing

3.1. A theoretical approach to equity financing of startups

3.1.1. Definition of Equity Financing

Startups must raise capital to promote their growth and reach their full potential. To get a comprehensive overview of a venture's need for external financing, see *Appendix C – Information Box 1.* There are several options for new ventures to raise this capital. One is equity financing via a priced round (Cremades, 2018). Equity has traditionally been the main financing option for early-stage start-up firms. This form of funding can happen through partnerships, individual or group angel investors, VCs, or at a later stage via an initial public offering (IPO). When raising equity, the venture owner sells a percentage of its ownership in the company to the investor in exchange for capital. Equity investors do not receive fixed repayments for their invested capital; however, they rely on receiving back their money, including an upside, through the distribution of future profit based on their ownership percentage via preferred or common stock (CFI, 2022).

Equity financing comes with several advantages. First, the non-existence of fixed repayment terms is one of the most significant benefits when choosing equity as a financing option. Particularly in the early stages of the start-up, the mean business still needs to be established, and the company needs to generate more profits to cover the obligations that would come with debt repayments. Therefore, equity can be a less risky way of financing the venture and allows the retention of enough profits to grow the company's resources by improving its cash flow. This offers more flexibility in making business decisions for sustainable operations in the long run and allocates more resources for reinvestment and growth (Cremades, 2018).

Equity financing transfers some of the risk of the business from the founder to the investors, who can potentially lose the entirety of their investment. Thus, it is the most expensive form of capital for the venture; investors require compensation for sharing the venture's risk. Equity is

subordinated to all other securities and creditors in case of a liquidation of the venture. The shares received by priced-round investors are preferred shares. They hold liquidation priority for payouts over the venture founders and common stockholders (Svested, 2021). Building on this, ownership of company shares allows investors a certain level of control and co-decision, namely voting rights. This can result in a loss of control for the founders and increase the difficulty of making decisions. However, the incentives of the founders and investors are usually aligned. Thus, this risk is limited. Investors receive a percentage of the profits generated by the venture depending on their share in the business.

Furthermore, raising capital via equity investments comes with a high administrative burden. The necessary valuation, negotiations, due diligence efforts, and contractual obligations 6 consume much time, require many legal actions, and come with high associated costs. The stock issuance of an equity-based financing round carries a significant financial burden for founders, particularly at smaller stages of the venture when the business is not as liquid (Cremades, 2018). Choosing to finance a venture via equity rounds offers some benefits as well as disadvantages. Some of these are mentioned here, but a more comprehensive analysis is made in *Chapter 3.1.2. Differentiation towards venture debt*.

3.1.2. Differentiation Equity and Venture Debt

External financing opens the possibility for startups to receive otherwise inaccessible sources of funds to foster growth and start working with partners, drawing from their partner's experiences, knowledge, network, and reputation. Different financing instruments have various benefits and drawbacks. Therefore, start-ups need to be very aware of their needs and incentives behind raising capital and the effects their choice can have on future financing rounds. *Appendix C – Figure 2* includes a comparison of the different financing instruments based on relevant criteria. The most significant differences in the financing instruments come with ownership, voting rights, and capital repayment.

Equity investors purchase a share in the company, allowing them decision rights but also making them take on some of the risk associated with the new venture; their investment floor is zero. Equity owners, therefore, charge for this risk-bearing and receive a percentage of the generated profit in line with the percentage of their ownership in the company (e.g., dividends) (Cremades, 2018). Equity investors typically bring a certain level of know-how, experience, and connections that will benefit the venture. These investors tend to invest as early as the startup's seed phase when cash flows are hard to predict, and it is tough for the venture to receive alternative financing via debt. They help build the company, making it easier for the venture to secure attractive financing options at later financing stages (Ready, 2012).

As indicated, debt financing is a form of financing more used for later stages, e.g., Series A and following, when the venture's business operations are more established and the company has access to higher cash flows. The most considerable advantage of this financing instrument for ventures is the maintenance of control and ownership in the company, as the incentives of the capital providers rest entirely on the collection of the principal and interest. Once the debt is repaid, the venture loses this liability; thus, using debt can ultimately be cheaper. Furthermore, debt can function as a tax shield for ventures at later investment stages once the business generates profits (Cremades, 2018). However, using debt can negatively impact profitability, particularly in the early stages of the venture. During the early stages of the venture when the business is bound to repay its debt obligations in the short term, making long-term sustainable decisions can become very difficult for the owners. This can have effects on the valuation of the company and either force inferior equity raising terms on the venture or prevent future financing rounds altogether.

For debt investing, the ceiling and floor are specified, offering the capital providers significant security, as debt obligations will be covered first in case of a liquidation. The startup has a

limited ability to operate as it is bound to meet its obligations in the form of specified installments, including a predetermined interest rate (Cremades, 2018).

Aside from the traditional debt, the startup can access venture debt. Venture debt, as described, is a form of borrowing capital to raise working capital and growth capital, funding for acquisitions or capital expenses, or a bridge to the next round of equity (Argueta, 2022). Specialist entities and banks provide this form of funding as they understand the dynamics of start-ups and will offer loans knowing asset collateral may be weak. Other than traditional debt financing, venture debt lenders tie their loans to accounts receivable, PP&E, and the right to purchase equity in case of a default (Cremades, 2018). Venture debt typically comes in the form of senior secured loans with the highest preference for repayment in case of liquidation. Unlike equity financing, venture debt does not require the company to be valued, thus is a faster and less cost-expensive form of external funding. This form of financing can be attractive for healthy ventures to gain time between different equity funding rounds to achieve more notable milestones and, thus, a better valuation. Also, venture debt neither means losing ownership in the company nor causing a dilution of equity (Stoykov, 2022).

In the early funding stages, equity investors face two types of information asymmetry; *moral hazard* and *adverse selection*. The moral hazard problem recognizes that the founder of the start-up might misuse or misallocate the received funds for his personal benefit instead of maximizing the investor's return (Nofsinger & Wang, 2011). The adverse selection indicates that the investors do not know about the founder's ability to lead the venture properly. Therefore, investors need to minimize their losses from information asymmetry. Moral hazard can be reduced by incentivizing, controlling, and monitoring the founder and the investor's active involvement in the venture. Due diligence on the investor side and signaling and risk shifting on the founder side are used to address the issue of adverse selection (Bellavitis, Kamuriwo, & Hommel, 2019).

Convertible Note financing is another form of external financing, often referred to as venture debt. Mainly looking at the development of the VC environment, it becomes clear how more flexible investment approaches become favorable and are used more often to postpone new equity rounds and, thus, corresponding valuations (Interview Consensus, 2022). However, this form of financing will be discussed under *Chapter 4: Convertible note financing;* therefore, more profound insights will not be taken at this point.

All in all, there are benefits and disadvantages to all mentioned financing instruments. Choosing the right option for the venture becomes more difficult with the complexity of entrepreneurial finance being accelerated by high inflation, a fragmented market environment, and a range of evolving geopolitical factors.

3.2. Startup valuation

3.2.1. Information availability over the venture's lifecycle

In 2021, the global startup economy generated $1.65tn in funding and accounted for 1,227 unicorns. Meanwhile, the global economy has undergone a massive revolution towards a digital era in which startups are the leading force, especially during the past years due to the acceleration of the COVID-19 pandemic (Startup Genome LLC., 2022). The World Economic Forum estimates digital business models to generate about 70% of value in the economy over the next decade. (World Economic Forum, 2022). Recognizing the importance of startups for global economic development, the relevance of an accurate company valuation becomes apparent.

Usually, startups have many funding rounds throughout their lifecycle. For equity rounds, a company valuation is necessary. Valuations can be pre- and post-money. The difference is the timing of when the equity value is estimated. Each valuation refers to a different point in the funding timeline. Pre-money refers to the company's equity value before the new financing round takes place. Thus, post-money valuation refers to the company's equity value once the financing round closes. Prior to raising capital, the pre-money valuation must be determined.

The difference between both valuations after the funding round determines whether the financing was an up-round[1] or a down-round[2] (Wall Street Prep, 2022).

Valuations depend highly on the different stages of a startup's lifecycle and the respective data available (Damodaran, 2018). *Appendix C – Figure 3* illustrates the differences in information availability over a business's lifecycle. The most relevant information differences appear in three sections: revenues and current operations, operating history, comparable firms, and source of value. Thus, the pre-money valuation deems to be the most difficult, particularly in a startup that stops the first round of funding. At that stage, assessing the value of the company is exceptionally difficult due to the very little financial information available (Choudhary, 2022). Adequate financial and non-financial information availability is critical for startup valuations. Due to the lack of financial information in early-stage startups, development and growth opportunities become more relevant for a venture's value than its current activities, as displayed in *Appendix C – Figure 3* (Black, 2003).

In summary, we can see the importance of accurate business valuation and the difficulties and dependencies associated with it. Startup valuation does not make it possible to apply a standardized valuation method. Still, it requires a high level of flexibility and adaptability to the different information available based on the business's development stage.

3.2.2. Valuation methods in Venture Capital

A common gusto when considering startup valuation in the VC environment is the idea that startup valuation is "more art than science. " High risk, high cash burn rates, and problems with information asymmetry are characteristics of startups (Köhn, 2018).

[1] The post-money valuation of the venture raising capital has increase compared to the pre-money valuation (Wall Street Prep, 2022)

[2] The post-money valuation of the venture raising capital has decreased compared to the pre-money valuation (Wall Street Prep, 2022)

Startup valuations can be split into traditional and innovative valuation methods. The most common methods for startup valuation are the *Discounted Cash Flow* model (DCF), valuation via *Multiple*s (comparable companies or transactions), the *Berkus Method* (BM), and the *Venture Capital Method* (VCM).

Traditional valuation models make use of the cost, income, and market approach. The cost approach, as a very static method, analyzes the current value of the firm's assets and liabilities. This approach is particularly unsuitable for startup valuation, as early-stage startups usually have very few tangible assets and are undercapitalized, and it completely disregards the venture's subsequent evolution (Montani, Gervasio, & Pulcini, 2020).

One of the most known valuation methods is the DCF. It is an income-based approach to valuation, often used as a supplementary method, and in the case of very cash-flow-driven companies, this method considers the future growth of cash flows with an applied discount rate. While the DFC can be very suitable for ventures at later stages, with stable or rapidly growing cash flows, and a level of operational maturity, its application for early-stage ventures can be difficult. Due to the lack of historic financial information about early-stage ventures, using a valuation method that is based on a large set of fixed assumptions regarding the project payoff, is highly uncertain and probabilistic (Shestakov, 2015). In the case of an application of this method for startup valuation, the discount rate needs to be adjusted based on the life cycle stage of the startup. The younger the startup, the higher its probability of failure, thus a higher VC target rate of return as displayed in *Appendix C: Figure 4* (Damodaran, 2009).

Lastly, the market approach uses comparable company or comparable transaction multiples from public market information to define a company's value. This method is more useful for the later stages of a startup's lifecycle, mainly its exit opportunities. This method follows a sense of arbitrage freedom. Thus, a company that is similar to another in terms of cash-flow generation and risk exposure should be worth the same. In line with this concept, a multiples

valuation identifies a set of comparable companies (so-called "peers") or comparable transactions. Their multiples are based on public market information (Montani, Gervasio, & Pulcini, 2020). For ventures that are still in their infancy, this approach is difficult to implement. Economic variables such as profits or revenue are often negative. Their comparable firms are usually not listed on the public market yet. Therefore, information is private. Firms listed on the stock market, on the other hand, are too mature to offer useful data for comparison. They disregard the problem of every firm holding specific and non-comparable features (Damodaran, 2009). When ventures have progressed in their lifecycle to the growth stage, chances are higher to be valued based on multiples from comparable firms.

Generally, traditional valuation methods assume efficiency in the markets, which is applicable to public markets. However, the VC market is a private market, thus being at risk for information asymmetry, which can create evaluative inefficiencies.

As seen, the most significant issue limiting the use of traditional valuation methods is the lack of specific information they need to work correctly. Thus investors came up with innovative approaches for pre-revenue valuations (Montani, Gervasio, & Pulcini, 2020).

The BM is one of the most used methods for startup valuation in venture capital. Unlike traditional methods, BM disregards financial projections. BM focuses on the potential of a company to reach over $20m in revenues within the first five years of the business operations. The startup can get a pre-money valuation of up to $2m and a post-money valuation of up to $2.5m based on five attributes of progress that will reduce the venture's risk of failure: sound idea (basic value, product risk), prototype (reducing technology risk), quality management team (reducing execution risk), strategic relationships (reducing market risk and competitive risk) and product rollout or sales (reducing financial or production risk) (Berkus, 2016). Each attribute and gain up to $500k for the overall valuation based on the attributed percentage of completion. Thus, valuation can range far below the possible $2m (pre-money) and $2.5m (post-money). This is

illustrated in *Appendix C – Figure 5*. Additionally, the calculation example also shows that each risk factor's financial valuation is highly subjective, resulting in a limitation for using the BM (Montani, Gervasio, & Pulcini, 2020).

The VCM originated in 1987 by Sahlman and Scherlis and is used for pre-revenue valuations. By assessing the company's future cash flows on a two to five-year time horizon via comparables and market multiples, the VCM determines the startup's terminal value. A very high-interest rate is used to discount the Terminal Value to receive the pre-money valuation. The interest rate used represents the rate of return requested by the VCs. A significant limitation of the VCM is the incorporated default risk in the discount rate. Default risk is expected to remain constant in this model, which is an unrealistic assumption over the company's life cycle (Montani, Gervasio, & Pulcini, 2020). Despite this limitation, it is the most widely used method for valuing companies in the VC context due to the incorporated high rate of return. Investors are aware most ventures fail, thus they demand a high potential return. A more comprehensive overview of the calculation can be seen in *Appendix C – Figure 6.*

Additionally, to the introduced valuation methods in the VC context, *Appendix C – Figure 7* illustrates three interdependent factors influencing startup valuation: the startup, VCs, and the external environment (Köhn, 2018).

Looking at the startup component within the framework, it indicates that the interrelationships between the startup's characteristics (e.g., industry, location, management control systems, funding round), founder and team (number of founders, prior experiences in startups and management, level of education, etc.), intellectual property and alliances helping to reduce information asymmetry through signaling as well as offering access to resources, and the venture's financial information have an impact on the valuation process. Likewise, the characteristics of the venture capitalist, such as its investor type, reputation and value-add, and valuation methodologies, impact the valuation process. Overall, the external environment, market factors, and

institutional as well as cultural factors impact the startup, VCs, and their investors; thus, the overall valuation process (Köhn, 2018). This framework underlines the relevance of more innovative valuation approaches.

Concluding, startups, unlike established businesses have particular features that make it hard to define an adequate valuation method. The younger the startup is in its development and the earlier it is in its life cycle, the harder its valuation becomes. Thus, not one single method can be applied to all stag, es, and there is a need for alternatives to traditional methods (Montani, Gervasio, & Pulcini, 2020). The ability to use flexible valuation methods can be a competitive advantage for VCs. A precise valuation has a large impact on equity investments and investment decisions. Overall, the consensus of the interviewed VC professionals shows the will to close equity rounds despite challenging market environments, thus underlining the importance of accurate company valuations (Interview Consensus, 2022).

3.3. Equity financing under a changing market environment

Securing equity investments has become one of the key challenges currently seen for VCs' portfolio companies (EIF, 2022). The challenging market environment has caused equity investments to decrease heavily for all funding stages since 2021 and has been replaced by Convertible Notes financing. The VCs' consensus, however, is that equity is generally the preferred investment strategy, particularly in early-stage investments. Thus, the question of what causes the investment strategy shifts away from equity investments during times of market uncertainties arise (Interview Consensus, 2022).

When financial markets are in turmoil and investors face economic uncertainties, investors shift their investment preferences away from risky asset classes towards safe-haven assets. Thus, it makes sense for VCs to shift their investment angles away from equity, the riskiest investment instrument, towards a safer option like convertible notes. However, VCs generally are willing

to swing for the fences and accept higher-risk investments. Therefore, the underlying reason that increases the uncertainty even VCs do not want to take on must be defined.

As seen in the previous Chapter 3.2.3, startup valuation is a tough challenge that becomes even harder under the challenging market environments currently affecting the VC ecosystem. This indicates that the largest cause for equity investments to decrease is the underlying valuation problem. The valuation problem must be split based on investment stages, early-stage investments between Seed to Series A, and late-stage investments, particularly companies in their growth stage.

During early-stage investments, most VCs focus on equity rounds. However, current valuations are deferred to more stable times in the market. Thus, VCs have more time to discuss financing options with the venture's founders. Mainly, it was established prior that the Portuguese VC ecosystem is focused on early-stage investments. Thus, they are betting their money mainly on the idea as well as the management team of the venture, leaving investments somewhat unaffected by the difficulty of decreased valuations. During the past year, which allowed for a very thriving VC environment, the VC market underwent several hot funding rounds. During those rounds, VCs competed against each other. This, however, has stopped, indicating a power shift from the venture toward the VCs (Interview Consensus, 2022). When VCs have larger bargaining power, they are not fighting for rounds; ultimately, valuations are more reasonable than before. Furthermore, a significant issue currently faced with decreased competitiveness between the VCs is the focus on runway extensions for existing portfolio companies. Markets are expected to rebound until 2024, but until then, a worsening environment is projected for 2023. This increases the urgency for startups to retrieve funding for a runway extension that will ensure the venture's capability to overcome the continuous market turmoil over the next two years. For example, companies that raised capital six to eight months ago are touching back with their investors to increase their funding for the same terms offered in the previous funding

round. As the ventures have progressed since then, follow-up investments for the same terms practically indicate a discount. The runway extension, however, is now often done via Convertible Notes *(see Chapter 4)* to defer valuation (Interview Consensus, 2022).

Public markets are down by about 75% affecting private market valuations, particularly at the later stage when the interconnectedness of the venture to comparable companies in the public market is more substantial and more applicable than at an early stage, leading to a more potent effect of multiple downturns in the public capital market on the venture's valuation. *Appendix C – Information Box 2* explains how public markets are affecting valuations for later-stage ventures using Klarna's high devaluation during the ventures last Equity round.

The valuation problem affects not only the number of equity investments that are done but also impacts the terms of those investments. When discussing lower valuations in an equity round, the expectation is that the VCs should receive a higher percentage of ownership. Usually, VCs advise the venture's owners not to dilute more than 20-25% per funding round in early-stage investments and even less in later stages. Leaders or co-leads of these investment rounds would at least want to receive half of the offered equity, amounting to around 10-12%. When investment rounds are valued lower, VCs hope to acquire a higher percentage, e.g., 15% (Interview Consensus, 2022). As equity rounds require high administrative work and costs; it may be a strategic move for investors to defer equity rounds; thus postponing the accounting effect of decreasing valuation until the next year or even 2024, when valuations are expected to bounce back to their previous year's standards. These investors extend their portfolio companies' runways through other investments as they believe these companies will overcome the current market turmoil. Also, IPOs are currently deferred as long as possible due to valuation difficulties (Interview Consensus, 2022).

Another effect of the current valuation difficulties is slight adjustments in the protective measures introduced for equity instruments. The engagement with existing portfolio companies

has increased due to a higher need for strategic and operational guidance as they face more significant uncertainty. Depending on the company, some need more dedication than others. An exciting development is the considerations made for fast-growing companies. The allocation of funds to existing portfolio companies to extend their runway is also happening for larger VCs focusing on growth-stage investments. Thus, it is difficult for some companies undergoing fast growth to have access to money to maintain this growth. This has led to discussions about whether the company should pace its growth for the time being (Interview Consensus, 2022). VCs, as well as the respective portfolio companies are now in the difficult position of weighing whether a slowdown in growth or a potential fundraising problem is a more significant hurdle. Moreover, some VCs might consider adding tranches to remain secure in their equity investment. However, this pillar of security for the VCs equity investment is frowned upon and only deemed to be partially useful for early-stage investments when the venture poses the most risk. However, this measure should be used for something other than later investment stages. Companies manage their operations based on the funds they have access to, and withholding funds, particularly in this challenging market environment that makes it hard for companies to meet their determined milestones, would only damage the venture's operative abilities (Interview Consensus, 2022).

As mentioned, early-stage valuations are more resilient, thus only showing slight decreases. Nonetheless, the level of write-offs is feared to increase. This is due to the difficulties VCs focused on growth-stage startups are facing. As the valuations of their portfolio companies are showing large downturns, they must allocate more funds to sustaining these companies rather than allocating their funds for new stages of Portuguese startups that thus far are mainly backed by Portuguese VCs focusing on early-stage investments with smaller ticket sizes. Portuguese VCs are running their startup investments based on hurdles. They are taking over the first hurdle, mainly early-stage funding rounds of startups, and relying on international VCs to invest

or co-invest in their startups in the startups' growth stages. This dependency on outside funding lines can cause Portuguese ventures in a more developed state during their lifecycle to lack the proper funding to fuel their growth. Thus, Portuguese VCs might find themselves in the situation of extending funding lines to their most promising startups, risking write-offs for their other startups (Interview Consensus, 2022).

Concluding, while VCs plan on closing equity rounds, the current market environment leading to VCs having increased bargaining power, would offer good conditions for equity investments. The current market environment, however, has created a valuation problem in the VC market. Thus, valuations are more difficult than they already were, increasing their unreliability and forcing VCs to transition to alternative investments.

3.4. Conclusion

In this paper, the focus lies on equity financing in Portugal's VC market, particularly how equity financing has been impacted by the turbulent macroeconomic and geopolitical environment.

The research was set up to understand the following two aspects: the *effects of a changing market environment on Equity financing in Portugal (1)* and thus the *impact on valuation (2) and application terms of Equity financing for ventures (3)*.

To answer these questions interviews with the five leading venture capital firms were conducted, allowing us to gain deep insights into the developments of the overall VC market in Portugal, as well as the developments and incentives of Equity investments in Portugal. Overall, equity rounds are preferred for venture funding by VCs. But, because ventures start postponing corporate goals and operate more carefully to extend their runways, and crashing public markets begin to have an effect on the private VC ecosystem, valuations start to be affected negatively. Thus, to defer valuations, that are ultimately required for Equity rounds, VCs tend to look for other financing options to make new and follow-on investments.

There has not been an apparent shift in term structure for Equity investments. An assumption was the shift towards milestone-based tranche payments of capital to the ventures, to mitigate the risk for Equity investors. Such terms would however be counterproductive as they would limit ventures in their operations because they can only base decisions on received funds.

However, Equity investors, due to the critical market environment, take the liberty to increase control when needed, participating in board meetings and influencing decision-making. (Interview Consensus, 2022)

Concluding, while Equity is the favored investment instrument to finance ventures, the current market dynamics originating in geopolitical problems and changing macroeconomic factors impact the frequency of Equity investments due to valuation difficulties as well as how VCs exercise control.

4. Concluding remarks

4.1. Recapitulation of key results

This paper aims to understand the *sensitivity of the Portuguese VC environment to the current macroeconomic and geoeconomics issues (1)* and the *implications for funding via Equity (2)* and *Convertible Debt (3)*. Four hypotheses for each section were used to create a set of open questions discussed with representatives of Portugal's leading VCs, thus, combined with market research led to the following observations.

H1 – VC: Valuations are down due to the current market situation: Due to the pressure of the public market in the face of geopolitical tensions and macroeconomic tightening, the valuation of ventures lowered. However, the Portuguese VC market appears to be more resilient due to its focus on early-stage ventures, where valuations are less dependent on financial performance. *H2 – VC: VCs hold high dry powder, which leads to a change in investment behavior:* VCs respond with a restrictive investment behavior. They invest in selected ventures with a capable management team, cash-generating and profitability capability, and scalability potential. They attempt to diversify their portfolio by investing in angel and seed ventures. *H3 – VC: Financing decisions are complex but in times of crisis the extension of the runway prevails:* VCs are increasingly making follow-on investments and seeking to strengthen their portfolio companies with additional liquidity. Through regular board meetings, they are involved in the operational challenges and support the extension of the runway. *H4 – VC: Market sentiment leads to an investor-friendly environment:* Increasing liquidity requirements of ventures to cope with operational challenges and restrictive investment behavior lead to an investor-friendly environment with low entry points for initial investments.

H1 – EQ: Ventures postpone their corporate goals, driving valuations down and reducing Equity financing: Public markets exert pressure on valuations, particularly for late-stage ventures, which ultimately trickles down to early-stage ventures. Ventures increasingly decelerate

operations and delay milestones in favor of runway extension. *H2 – EQ: VCs face difficulties evaluating risks associated with new ventures:* Due to emphasis on extending the runway of existing portfolio companies, investments in new ventures decline. Devaluations have an inferior impact on early-stage ventures, but overall risk leads to more conservative valuation assumptions. *H3 – EQ: Higher uncertainty and corresponding risk requir greater control of VCs:* VCs tend not to require greater stakes in ventures. However, they reserve the right to exercise greater control when deemed necessary and are more involved in the portfolio company's operations. *H4 – EQ: Equity terms change towards milestone-based constructs:* Terms are not affected and there is no significant shift to e.g. milestone-based funding as this would advocate inflexibility and is expected to inhibit future growth trajectory

H1 – CN: More financing in the form of Convertible Notes: Conducted interviews with the leading venture capital firms indicated that the market dynamics have led to an increase in the use of convertible debt in Portugal. *H2 – CN: There are different intentions for financing through Convertible Notes:* Angel and seed ventures make use of Seed Notes due to their swift, standardized, and cost-effective implementation, while Bridge Notes are chosen to extend portfolio companies' runway and delay valuations. *H3 – CN: There is a difference between first and follow-on investments:* For initial investments, a low entry point is currently established, which favors financing via priced equity. For follow-on investments, convertible notes allow the strategic delay of the valuation. As a result, VCs do not have to report a devaluation in the fund reporting. *H4 – CN: Convertible Debt terms are structured in favor of investors:* Examination of the deal terms revealed that Convertible Notes had a marginally higher all-in price, intended to compensate for the increased market risk. However, Investors avoid imposing excessive terms to not inhibit future growth trajectory in subsequent funding rounds.

4.2. Critical appraisal and research outlook

This paper aims to shed light on the current Venture Capital sentiment and the implications for financing using priced equity and convertible debt under changing market dynamics. However, the underlying work is subject to limitations which are assessed in this section.

The most significant limitation of this paper is the scope which did not allow for a more extensive number of interviews to be conducted. Furthermore, the paper might be considered one-dimensional. Although the interviews were conducted to cover more than 75% of the assets under the management of the Portuguese VC market, only Portuguese investors and only VCs were interviewed. As a result, the collected information cannot be applied globally because it is derived from a strong investor perspective and depends on the Portuguese ecosystem. Additionally, the chosen investors offer a track record of deals throughout their professional experience. Therefore, it should be emphasized that they reflected their own opinions and experience, which means that subjectivity cannot be excluded. Furthermore, the interviewees were provided through the network of the paper supervisor Marco Fernandes, which may lead to selection bias. Finally, a broader quantitative analysis could validate the results.

The given paper provides a starting point to understand how the Venture Capital market is affected by geopolitical tensions and macroeconomic downturns. Given the inherent complexity, further research is needed to encompass interdependencies fully. Future research approaches should include additional markets and the startups' perspective. Also, to gain an even deeper understanding of the Portuguese VC ecosystem, future research can incorporate further interviews with additional players in this environment, such as startups, governmental policy actors, etc. Also, it would be interesting to conduct this research over a longitudinal study. A retrospective view would highlight which VC ecosystems are more resilient and to what extent financing problems could be mitigated using alternative financial instruments, such as Convertible Debt.

Appendix

Appendix A: Background

ORGANIZATION	TYPE	POSITION	COUNTRY/ REGION FOCUS
Armilar Venture Partners	Venture Capital	General Partner	Portugal
Chamaeleon	Venture Capital	Founder & General Partner	USA, Portugal
Iberis Capital	Venture Capital	General Partner	Portugal
Indico Capital	Venture Capital	General Partner	Portugal
Portugal Ventures	Venture Capital	CEO	Portugal

Figure 1: Expert Interviews
(own illustration)

Research Question 1: What is the Venture Capital (VC) Sentiment in Portugal?	
H1 - VC	Valuations are down due to the current market situation
H2 - VC	VCs hold high dry-powder, which leads to a change in investment behavior
H3 - VC	Financing decision are complex but in times of crisis the extension of the runway prevails
H4 - VC	Market sentiment leads to investor-friendly environment

Research Question 2: How do current market dynamics influence and disadvantage the financing of Priced Equity (EQ)?	
H1 - EQ	Ventures postpone their milestones, driving valuations down and reducing Equity financing
H2 - EQ	VCs face difficulties evaluating risks associated with new ventures
H3 - EQ	Higher uncertainty and corresponding risk requires greater control of VCs
H4 - EQ	Equity terms change towards milestone-based constructs

Research Question 3: How do current market dynamics influence and favor the financing of Convertible Notes (CN)?	
H1 - CN	More financing in the form of Convertible Notes
H2 - CN	There are a different intentions for financing through Convertible Notes
H3 - CN	There is a difference between first and follow-on investments
H4 - CN	Convertible Debt terms are structured in favor of investors

Figure 2: Research Questions and Hypothesis
(own illustration)

Appendix B: Financing environment and market conditions

Figure 1: Drivers of new market dynamic
(own illustration based on IMF, 2022, and EIF,2022)

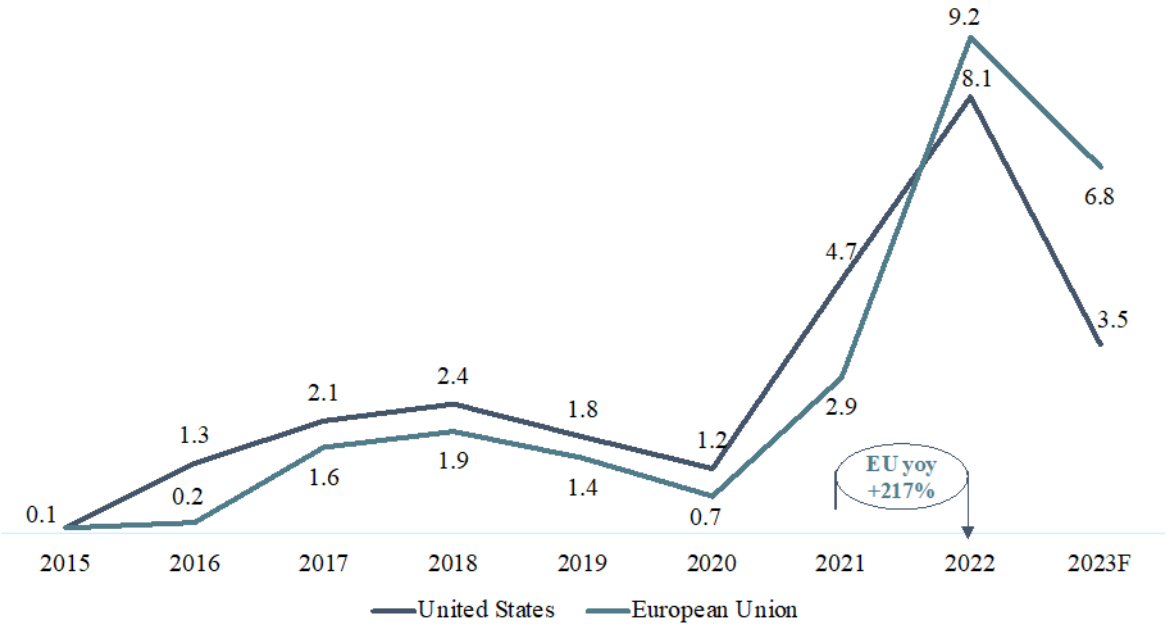

Figure 2: Inflation 2015 – 2023 in the United States and European Union
(own illustration based on IMF, 2022)

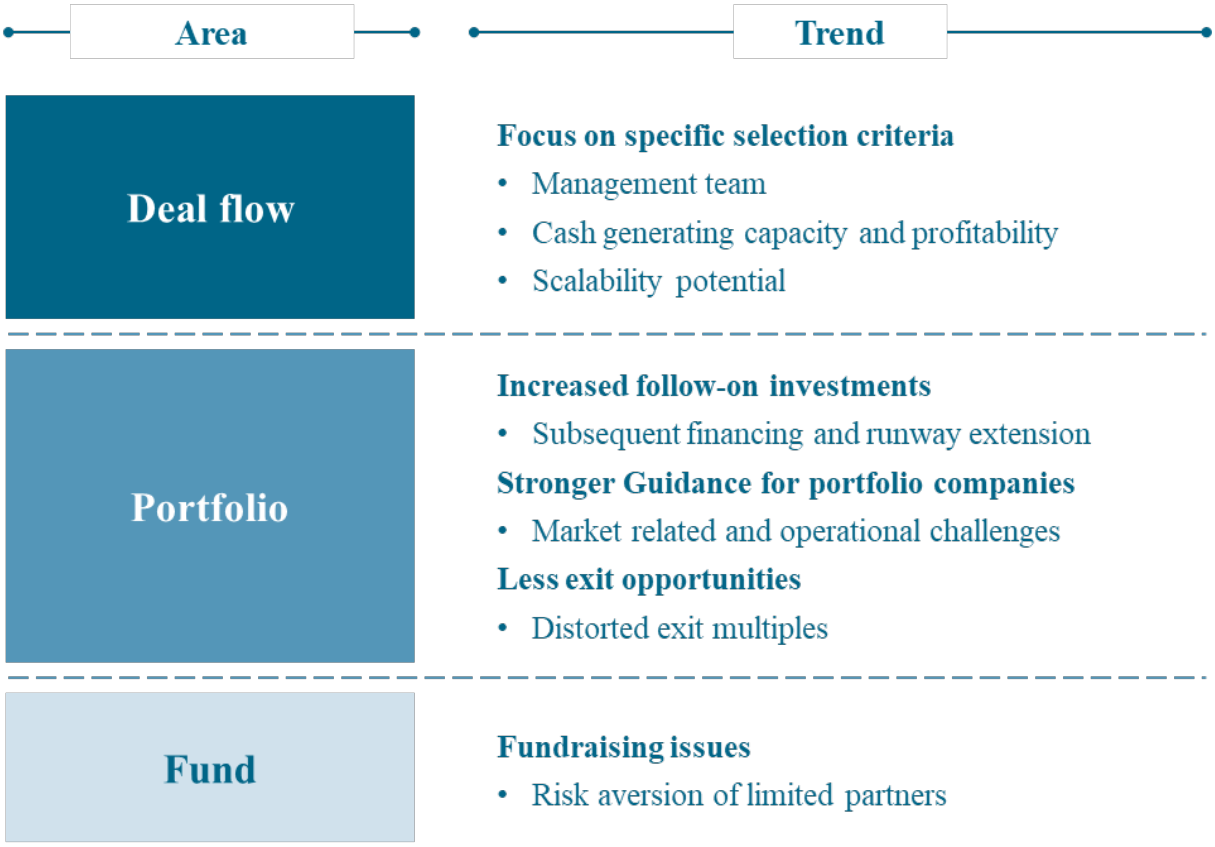

Figure 3: Changes in Venture Capital Firm Behavior
(own illustration based on EIF, 2022, and Interview Consensus, 2022)

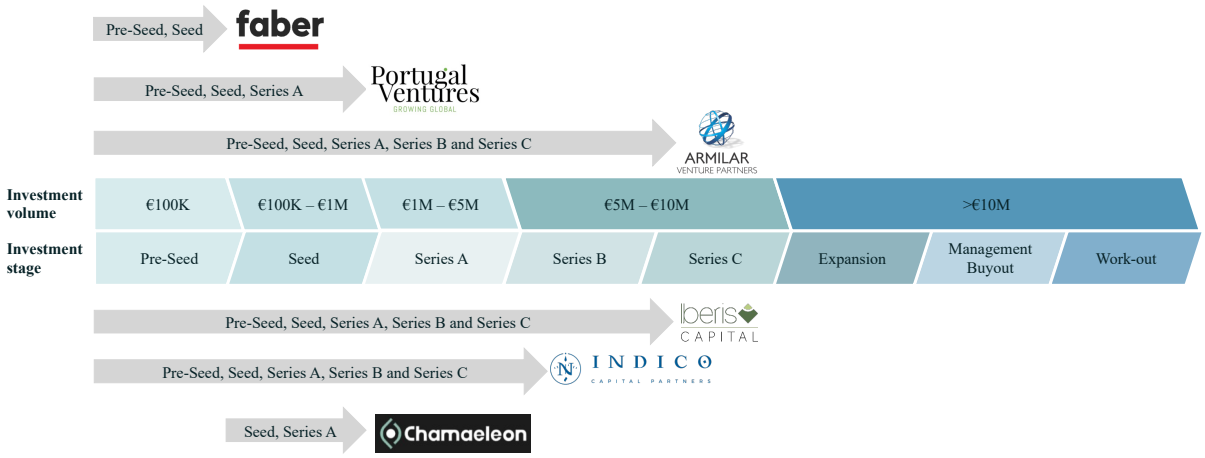

Figure 4: Portuguese Venture Capital firm environment
(own illustration based on Interview Consensus, 2022)

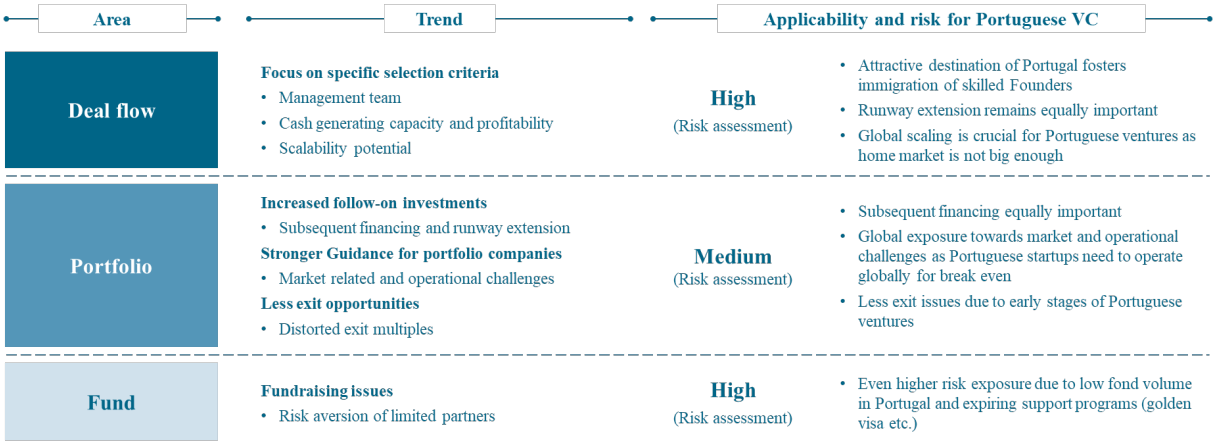

Figure 5: Sentiment of Portuguese Venture Capital Market (own illustration based on Interview Consensus, 2022)

Appendix C: Equity Financing

Information Box 1: Need for external financing

Two thirds of start-ups fail and never deliver positive returns to their investors. This can be due to many reasons. While it is often necessary for start-ups to cover their costs via external funding, it is of high importance to decide on the right funding option and investor, as these bedfellows can play a role in the success or misfortune of a start-up. (Eisenmann, 2021) Reasons why start-ups need external funding can differ. Profitability, asset intensity, and the pace of growth are some reasons. Regarding profitability, external capital is needed to cover the initial costs and get the firm off the ground towards a profitable state. However, just because a firm is profitable, does not mean the firm is able to meet its financial obligations. Particularly asset intense companies often face a lag between the time to cash and the time for assets to generate sales. Thus, leading to negative cash flows and liquidity issues. Another reason for external financing is the business' pace of growth. The faster the business grows; the more assets will have to be tied up in supporting its capital. Aside from these clear back-office reasons for financing, other aspects can be relevant for the need of external financing such as a large marketing budget to connect your product to the necessary audience and financial capability to meet your window of opportunity when launching your product. Further, visibility as well as reputational benefits through well-known financial backers can have significant upsides including access to talent, advisors, and more money. External financing will also reduce the risk for the founders to drain their personal funds by bootstrapping their business. These among other reasons can cause new ventures to search for external funding. Most of the time a blend of the above named and more reasons can be the source of need. (Ready, 2012) *Appendix C: Figure 1* provides an overview of the different funding stages for startups as well as their possible funding partners in all situations. While there are different funding partners startups can try to reach there are also different ways of funding.

Information Box 1: Need for external financing

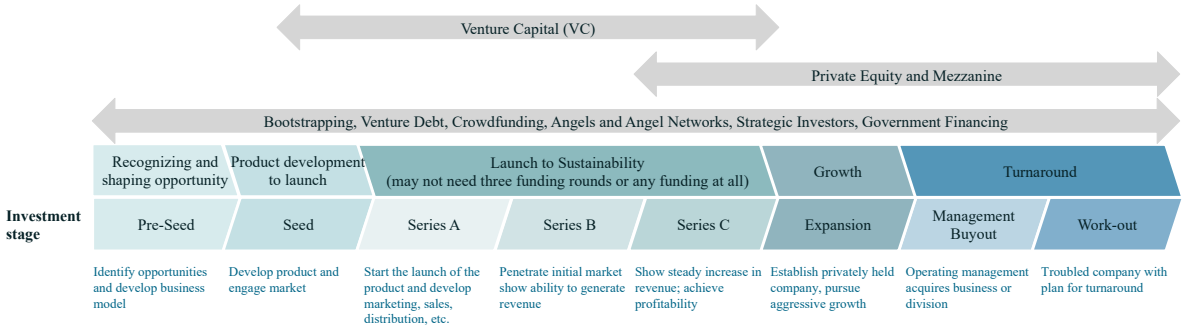

Figure 1: Investment phases and investor types (own illustration) (Ragozzino, 2022))

	EQUITY	VENTURE DEBT	CONVERTIBLE DEBT
Ownership	Yes	No	Partial[1]
Voting Rights	Yes	No	Partial[1]
Risk & Return	Floor: Zero (high risk) Ceiling: Undefined	Floor: Zero (high risk) Ceiling: Limited to financial obligations	Floor: Specified (relatively low risk) Ceiling: Undefined
Capital Repayment	Repayment with sale of company	Fixed schedule of principal and interest payments	Repayment on maturity or conversion and repayment with sale of company
Dividends & Interest	Dividends accrued (residual claims)	Interest paid on fixed schedule	Interest accrued and repaid on maturity; Conversion into equity
Sale of Company	% of ownership share after debt obligations are covered	Paid prior to equity: Remaining capital and any unpaid interests	Paid prior to equity; remaining capital and unpaid interest
Investor Incentives	In line with founder	Limited to capital repayment	Can shift with conversion
Funding speed	Long and costly	Quick and cheap	Medium

1) No while note is outstanding, yeas after conversion to equity

Figure 2: Differentiation of Equity, Debt and Convertible Debt (own illustration based on FlowCapital, 2022)

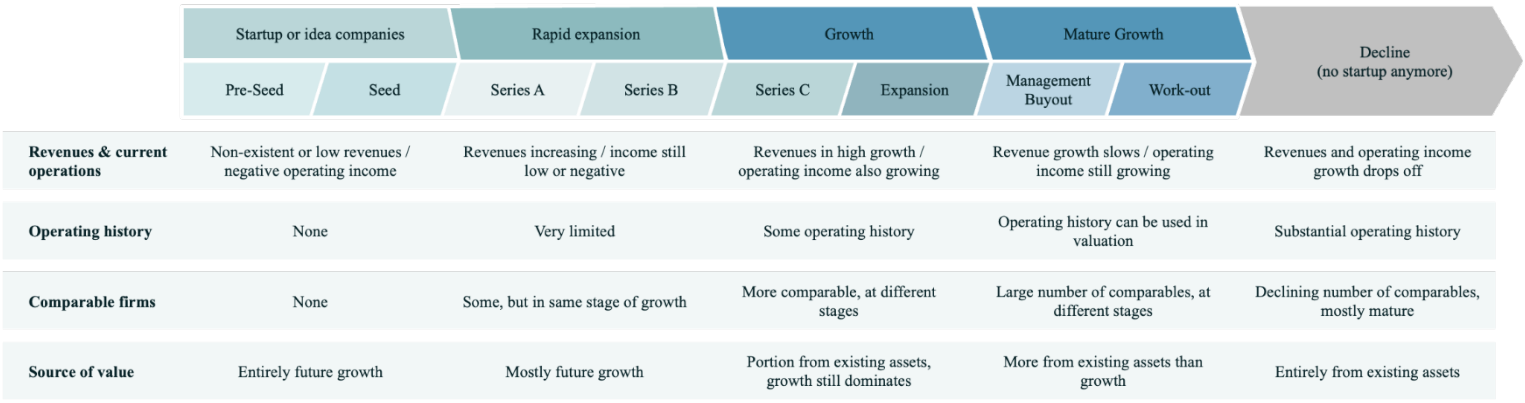

Figure 3: Valuation Issues across the Life Cycle
(own illustration based upon Damodaran, 2018)

Venture's development stage	Target rate of return for VCs
Startup stage	50 % - 70 %
First stage	40 % - 60 %
Later stage	35 % - 50 %
Bridge / IPO	25 % - 35 %

Figure 4: Venture Capital Target Rates of Return – Stage in Life Cycle (Damodaran, 2009)

Berkus Method (BM)		Adjustable by valuator	
Factor	$ Worth	% of completion	Value
sound idea (basic value, product risk)	$ 500.000	100%	500.000
prototype (reducing technology risk)	$ 500.000	60%	300.000
quality management team (reducing execution risk)	$ 500.000	50%	250.000
strategic relationships (reducing market risk and competitive risk)	$ 500.000	15%	75.000
product rollout or sales (reducing financial or production risk)	$ 500.000	0%	-
Total value			**$ 1.125.000**

The startup can get a pre-money valuation of up to $2m and a post-money valuation of up to $2.5m based on five attributes of progress that will reduce the venture's risk of failure. Each attribute is multiplied by the percentage of completiton applied on the factor by the valuator. A sum of the value for each factor results in the overall company valuation for the funding round. The figure is with examplatory percentage attributions.

Figure 5: Calculation Example of Berkus Method
(own illustration based upon Berkus, 2016)

The Venture Capital Method (VCM)			
via Revenues		**via Earnings**	
1) Exit Revenues	$ 15.000.000	1) Exit Earnings	$ 2.000.000
Price-to-Sales Multiple	4x	Price-to-Earnings Multiple	30x
depending on industry range between 1 to well above 12 (Damodaran 2022a)		**depending on industry range between 7 to well above 100 (Damodaran 2022b)*	
2) Exit / Terminal Value	$ 60.000.000	2) Exit / Terminal Value	$ 60.000.000
Return Multiple demanded by investor (25-35)**	25x	Return Multiple demanded by investor (25-35)**	25x
3) Post-money valuation	$ 2.400.000	3) Post-money valuation	$ 2.400.000
Raised investment during equity round	$ 500.000	Raised investment during equity round	$ 500.000
4) Pre-money valuation	$ 1.900.000	4) Pre-money valuation	$ 1.900.000

The VCM aims to determin the pre-money valuation of a round via the following steps:
1) Assessing the venture's earnings and revenues at via expected cash flows over a specified time horizon (time until planned exit)
2) Determine the company's exit value (Terminal Value) by multiplying the exit earnings and revenue with the applied market multiple (exemplatory the Price-to-Earnings and Price-to-Sales multiple was used for earnings in revenues, respectively)
3) Devide the Terminal Value by the return multiple expected by the investor to reach the post-money valuation
4) Deduct the raised investment amount during the equity round to reach the pre-money valuation
*Revenue's and Earnings' pre-money valuation can differ due to possibly differing Terminal Values

Figure 6: Calculation Example of VCM (own illustration based on Montani, Gervasio & Pulcini, 2020; Damodaran, 2022a; Damodaran, 2022b)

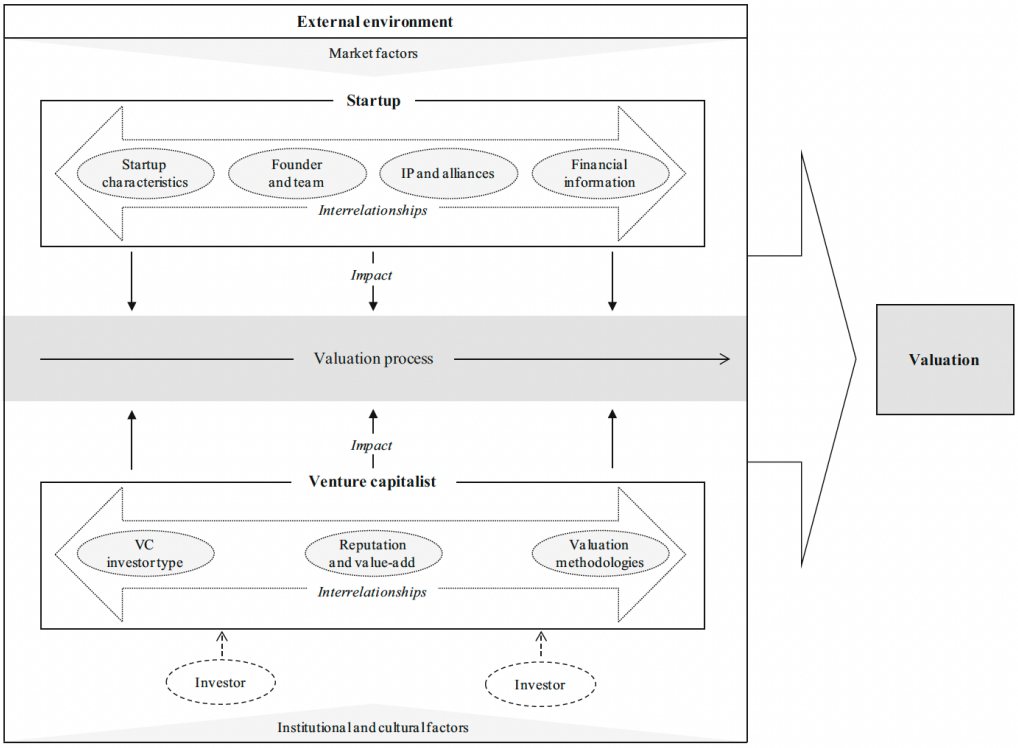

Figure 7: Conceptual framework for start-up valuation (Köhn, 2018)

Information Box 2:

The valuation problem for Klarna

Buy now.
Pay later.
No fees.

Klarna.

Klarna is one example of the late-stage valuation problem the venture capital market is currently facing. The company is the market leader for global payments and shopping services, providing smarter and more flexible payment options to over 150 million active consumers, across more than 450,000 merchants in 45 countries. Despite its strong market position, the company has not been immune to the significant downturns of fintech stock in the public market. (Klarna, 2022) In the company's most recent funding round, that occurred during the most difficult market environment since the second world war when looking at the geopolitical and macroeconomic developments during the current year, the company had to face a valuation decrease of $39bn from their valuation of $45.6bn. (Dakers, 2022) Klarna's valuation of now $6.1bn is still three times higher than during the company's previous investment round in 2018. Furthermore, the company is met by much support by remaining old and new investors, thus, was able to secure $800m during this year's funding round. Regardless, a decrease of over 80% in the company's valuation has been a hard hit. The effects of the macroeconomic and geopolitical tensions, affecting public markets, thus having strong repercussions on late-stage private companies, such as Klarna, whose public peers are down as well by 80-90% vs. their peak valuations. Furthermore, Klarna is also exposed to the downturns in consumer finances, causing the company to pile up debt. (Dakers, 2022) Adding on that, regulatory tightening's on the interest-free buy-now, pay-later sector which poses another challenge for the company. (Gani & Levingston, 2022)

Bibliography

200M Coinvestment Fund. (2022, December 08). *200M Portugal*. Retrieved from https://www.200m.pt/ [Accessed 18.11.2022]

Argueta, A. (2022). *Understanding venture debt financing*. Retrieved from svb.com/startup-insights/venture-debt/how-does-venture-debt-work [Accessed 01.12.2022]

Armilar Venture Partners. (2022). *Paving the way for outstanding businesses*. Retrieved from https://www.armilar.com/why-armilar [Accessed 18.11.2022]

Atomico. (2022). *State of the European Tech 22.* Atomico.

Australian Government Business. (2022). *business.gov.au*. Retrieved from https://business.gov.au/grants-and-programs/venture-capital/safe-notes#:~:text=In%20practice%2C%20a%20SAFE%20is,set%20out%20in%20the%20SAFE. [Accessed 18.11.2022]

Becker, J., & Chaplinksky, S. (2019). *Convertible Notes: A Form of Early-Stage Financing.*

Bellavitis, C., Kamuriwo, D., & Hommel, U. (2019). Mitigation of Moral Hazard and Adverse Selection in Venture Capital Financing: The Influence of the Country's Institutional Setting. *Journal of Small Business Management*.

Berkus, D. (2016). *After 20 years: Updating the Berkus Method of valuation*. Retrieved from Berkonomics: https://berkonomics.com/?p=2752 [Accessed 09.12.2022]

Black, E. (2003). Usefulness of financial statement components in valuation: an examination of start-up and growth firms. *Venture Capital Vol. 5*, 47-69.

Bygrave, W. (1987). Syndicated investments by venture capital firms: A networking perspective. *Journal of Business Venturing*, 139-154.

CFI. (2022, December 10). *Equity Financing*. Retrieved from https://corporatefinanceinstitute.com/resources/valuation/equity-financing/[Accessed 01.12.2022]

Chamaeleon. (2022). *Start-ups are changing. It's time for Venture Capital to change.* Retrieved from https://www.chamaeleon.vc/approach [Accessed 18.11.2022]

Chang, S.-C., Feng, S., & Wang, F. (2018). Two-Sided Asymmetric Information and Convertible Securities in Venture Financing.

Choudhary, S. (2022). *Pre-Money Vs Post-Money Valuation: The Meaning, Difference, and Calculation*. Retrieved from https://www.salt.pe/blog/pre-money-valuation-and-post-money-valuation#:~:text=The%20pre%2Dmoney%20valuation%20of%20a%20firm%20can%20be%20particularly,valuation%20of%20early%2Dstage%20businesses. [Accessed 02.12.2022]

Coyle, J., & Green, J. (2014). Contractual innovation in venture capital. *Hastings LJ*, 133-183.

Coyle, J., & Green, J. (n.d.). The SAFE, the KISS, and the Note: A Survey of Startup Seed Financing Contracts. *Minn. L. Rev.*, 2018.

Cremades, A. (2018). *Debt vs. Equity Financing: Pros And Cons For Entrepreneurs*. Retrieved from https://www.forbes.com/sites/alejandrocremades/2018/08/19/debt-vs-equity-financinpros-and-cons-for-entrepreneurs/?sh=2b05cfc06900 [Accessed 01.12.2022]

Crunchbase. (2022). *Crunchbase*. Retrieved from Europe Seed Stage Investors: https://www.crunchbase.com/hub/europe-seed-stage-investors [Accessed 01.12.2022]

Crunchbase. (2022). *crunchbase.com*. Retrieved from https://www.crunchbase.com/organization/klarna/company_financials [Accessed 01.12.2022]

Dakers, M. (2022). *Bloomberg*. Retrieved from Klarna's Valuation Slashed by $39 Billion Amid Fintech Rout: https://www.bloomberg.com/news/articles/2022-07-11/klarna-funding-round-cuts-value-to-6-7-billion-from-46-billion [Accessed 01.12.2022]

Damodaran, A. (2009). *Valuing Young, Start-up and Growth Companies: Estimation Issues and Valuation Challenges.* Retrieved from https://pages.stern.nyu.edu/~adamodar/pdfiles/papers/younggrowth.pdf [Accessed 06.12.2022]

Damodaran, A. (2018). *The Dark Side of Valuation.* Pearson Education Ltd.

Damodaran, A. (2022a). *Revenue Multiples by Sector (US)*. Retrieved from https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/psdata.html [Accessed 13.12.2022]

Damodaran, A. (2022b). *PE Ratio by Sector (US)*. Retrieved from https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/pedata.html [Accessed 13.12.2022]

Davis, J., Morse, A., & Wang, X. (2018). The Leveraging of Silicon Valley.

Dealroom. (2021). *Creating Europe's most connected tech hubs – Scale Cities Alliance*. Retrieved from https://dealroom.co/blog/distributed-startup-ecosystems-scale-startup-city-alliance [Accessed 18.11.2022]

Dealroom, Silicon Valley Bank. (2022). *European VC Pulse Check.*

Diligent Equity. (2022). *equityeffect.com*. Retrieved from https://www.equityeffect.com/blog/safe-note-vs-convertible-note/ [Accessed 05.12.2022]

ECO News. (2021). *Portugal has as many unicorns as Spain, Greece and Italy combined*. Retrieved from https://econews.pt/2021/11/04/portugal-has-as-many-unicorns-as-spain-greece-and-italy-combined/ [Accessed 12.12.2022]

EIF. (2022). *VC Survey 2022: Market sentiment and impact of the current geopolitical & macroeconomic environment.*

Eisenmann, T. (2021). *Why Start-ups Fail*. Retrieved from Harvard Business Review: https://hbr.org/2021/05/why-start-ups-fail [Accessed 03.12.2022]

Elo, M. (2021). International venturing and investment: global citizens and golden visas. *Transnational Corporations*, pp. 65-96. [Accessed 12.09.2022]

European Central Bank. (2022). *Monetary policy decisions*. Retrieved from https://www.ecb.europa.eu/press/pr/date/2022/html/ecb.mp221027~df1d778b84.en.html#:~:text=Key%20ECB%20interest%20rates,-The%20Governing%20Council&text=Accordingly%2C%20the%20interest%20rate%20on,effect%20from%202%20November%202022. [Accessed 01.12.2022]

Faber Ventures. (2022). *Faber Ventures - Approach*. Retrieved from https://www.faber-ventures.com/approach/ [Accessed 18.11.2022]

Feld, B., & Mendelson, J. (2019). *Venture Deals: Be smarter than your lawyer and venture capitalist.* John Wiley & Sons.

FlowCapital. (2022). *Raising Capital for Startups: Equity, Venture Debt, or Convertible Notes?* Retrieved from https://flowcap.com/raising-capital-for-startups-equity-venture-debt-or-convertible-notes/ [Accessed 01.12.2022]

Gani, A., & Levingston, I. (2022, May 19). *Klarna Faces Valuation Drop to $30 Billion as Seeks Funding*. Retrieved from https://www.bloomberg.com/news/articles/2022-05-19/klarna-seeks-new-funding-at-lower-30-billion-valuation [Accessed 10.12.2022]

Gourinchas, P.-O. (2022, June). Shifting Geopolitical Tectonic Plates. *Finance & Development IMF*, pp. 10-11.

Iberis Capital. (2022). *Portugese Private Equity and Venture Capital*. Retrieved from https://iberiscapital.com/ [Accessed 18.11.2022]

IHS Markit. (2022). *The Great Supply Chain Disruption: Why it continues in 2022.* IHS Markit.

Imai, Y. (2019). Equity investment decision-making cost under the existince of convertible note holder in the second financing round.

IMF. (2022). *IMF Datamapper*. Retrieved from Inflation rate, average consumer prices: https://www.imf.org/external/datamapper/PCPIPCH@WEO/EU/USA [Accessed 01.12.2022]

Indico Capital. (2022). *Indico Capital - About Us*. Retrieved from https://www.indicocapital.com/about-us#investment-philosophy [Accessed 18.11.2022]

International Monetary Fund. (2022). *World Economic Outlook: Countering the Cost-of-Living Crisis.* Washington D.C.

Interview Consensus. (2022). Interview Consensus. (V. Karst, & C. Knautz, Interviewers)

Joseph Amankwah-Amoah, Z. K. (2021). COVID-19 and digitalization: The great acceleration. *Journal of Business Research*, 602-611.

Köhn, A. (2018). The determinants of startup valuation in the venture capital context: a systematic review and avenues for future research. *Management Review Quarterly*, 68: 3-36.

Klarna. (2022). *Klarna closes major financing round during worst stock downturn in 50 years.* Retrieved from https://www.klarna.com/international/regulatory-news/klarna-closes-major-financing-round-during-worst-stock-downturn-in-50-years/ [Accessed 01.12.2022]

Lasicki, T. (2021). The Rise of Alternative Early Stage Financing Methods.

Levy, C. (2022). *Safe Financing Documents*. Retrieved from https://www.ycombinator.com/documents#about [Accessed 01.12.2022]

Montani, D., Gervasio, D., & Pulcini, A. (2020). Startup Company Valuation: The State of Art and Future Trends. *International Business Research Vol. 39* , 31-45.

Monteiro, P. (2020). Startup: da inovação tecnologia à conformação jurídic.

National Bureau of Economic Research. (2016). How Do Venture Capitalists Make Decisions? - Working Paper.

Nijs, L. (2013). *Mezzanine financing: tools, apllications and total performance.* John WIley & Sons.

Nofsinger, J., & Wang, W. (2011). Determinants of start-up firm external financing worldwide. *Journal of Banking & Finance 35*, 2282-2294. [Accessed 01.12.2022]

O'Brien, A. (2022). *The most active US debt providers for European startups*. Retrieved from https://sifted.eu/articles/top-us-debt-investors-europe-startups/ [Accessed 01.12.2022]

OECD. (2022). *Country risk classification*. Retrieved from https://www.oecd.org/trade/topics/export-credits/arrangement-and-sector-understandings/financing-terms-and-conditions/country-risk-classification/ [Accessed 01.12.2022]

Orcutt, J. (2020). Valuing Young Startups is Unavoidably Difficult: Using (and Misusing) Deferred-Equity Instruments for Seed Investing. *Tulsa Law Review*.

Pitchbook. (2022). *European Venture Report 2022 Q3.*

Portugal Golden Visa. (2022). *Portugal Golden Visa Statistics*. Retrieved from https://www.portugal-golden-visa.pt/statistics [Accessed 18.11.2022]

Portugal Ventures. (2022). *Investment Strategy*. Retrieved from https://www.portugalventures.pt/en/about-us/investment-strategy-2/ [Accessed 18.11.2022]

Pratt, M., & Crowe, A. (1995). Mezzanine Finance. *Bank of England*.

Ragozzino, R. (2022). Entrepreneurial Strategy. Carcavelos.

Rasiel, E. M. (1999). *The McKinsey Way.* New York: McGraw Hill.

Ready, K. (2012). *Do Startups Need Funding Anymore?* Retrieved from Forbes: https://www.forbes.com/sites/kevinready/2012/09/18/do-startups-need-funding-anymore/?sh=778c7c02a66a [Accessed 01.12.2022]

Rodriguez, C. (2022). *Forbes*. Retrieved from Portugal Likely To End Its Coveted Golden Visa Program: https://www.forbes.com/sites/ceciliarodriguez/2022/11/04/portugal-likely-to-end-its-coveted-golden-visa-program/?sh=2d4f6c063cba [Accessed 01.12.2022]

Rosenbloom, M. (2022). *Startups, Don't Pin Your Hopes on VC Dry Powder*. Retrieved from Harvard Business Review: https://hbr.org/2022/10/startups-dont-pin-your-hopes-on-vc-dry-powder [Accessed 01.12.2022]

Seedrs. (2022). *seedrs.com*. Retrieved from https://www.seedrs.com/insights/blog/investing/the-importance-of-diversification-in-startup-investing [Accessed 01.12.2022]

Shestakov, D. (2015). Real Option Approach to Evaluate Strategic Flexibility for Startup Projects. *Business and Economics Conference Vol. 3*, 360-368.

Sprink, T. (2001). Mezzanine Financing: Bridging the Funding Gap. *ABFJournal*, 1-3.

Startup Genome LLC. (2022). *The Global Startup Ecosystem Report 2022.* Retrieved from https://startupgenome.com/reports/gser2022 [Accessed 10.12.2022]

Stoykov, H. (2022). *What is venture debt?* Retrieved from European Investment Bank: https://www.eib.org/en/stories/what-is-venture-debt [Accessed 03.12.2022]

Surak, K., & Tsuzuki, Y. (2021). Are golden visas a golden opportunity? Assessing the economic origins and outcomes of residence by investment programmes in the EU. *Journal of Ethnic and Migration Studies*, pp. 3367-3389. Retrieved from https://www.tandfonline.com/doi/full/10.1080/1369183X.2021.1915755 [Accessed 01.12.2022]

Svested. (2021). *Priced rounds vs Convertibles (Notes and SAFE): Valuations & Calculations*. Retrieved from https://www.svested.com/resources/priced-rounds-vs-convertibles-notes-and-safe-valuations-calculations#:~:text=While%20a%20full%20priced%20round,process%2C%20which%20usually%20takes%20months [Accessed 01.12.2022]

Techcrunch. (2022). *techcrunch.com*. Retrieved from https://techcrunch.com/2012/04/07/convertible-note-seed-financings/ [Accessed 01.12.2022]

Thoma, B. (2018). *Convertible Bonds - an Introduction.* Fisch Asset Management.

Trading Economics. (2022). *tradingeconomics.com*. Retrieved from https://tradingeconomics.com/bonds [Accessed 12.12.2022]

Uzun, H. (2019). Convertible notes in early-stage venture finacning. *Venture Capital*, 147-163.

Verdonik, J., & Jones, B. (2020). *Need startup funding? Convertible Notes is increasingly popular option – here's why*. Retrieved from https://wraltechwire.com/2020/11/13/need-startup-funding-convertible-notes-is-increasingly-popular-option-heres-why/ [Accessed 13.11.2022]

Wall Street Prep. (2022). *Pre-Money vs. Post-Money Valuation*. Retrieved from https://www.wallstreetprep.com/knowledge/pre-post-money-valuation/ [Accessed 12.07.2022]

World Bank Group. (2020). *Doing Business 2020.* Washington D.C.: International Bank for Reconstruction and Development / The World Bank. Retrieved from https://openknowledge.worldbank.org/bitstream/handle/10986/32436/9781464814402.pdf [Accessed 18.11.2022]

World Economic Forum. (2022). *Shaping the Future of Digital Economy and New Value Creation*. Retrieved from https://www.weforum.org/platforms/shaping-the-future-of-digital-economy-and-new-value-creation [Accessed 18.11.2022]

World Population Review. (2022). *Human Development Index (HDI) by Country 2022*. Retrieved from https://worldpopulationreview.com/country-rankings/hdi-by-country [Accessed 18.11.2022]