

The Family 1000: Family values and value creation

Leading perspectives to navigate the future

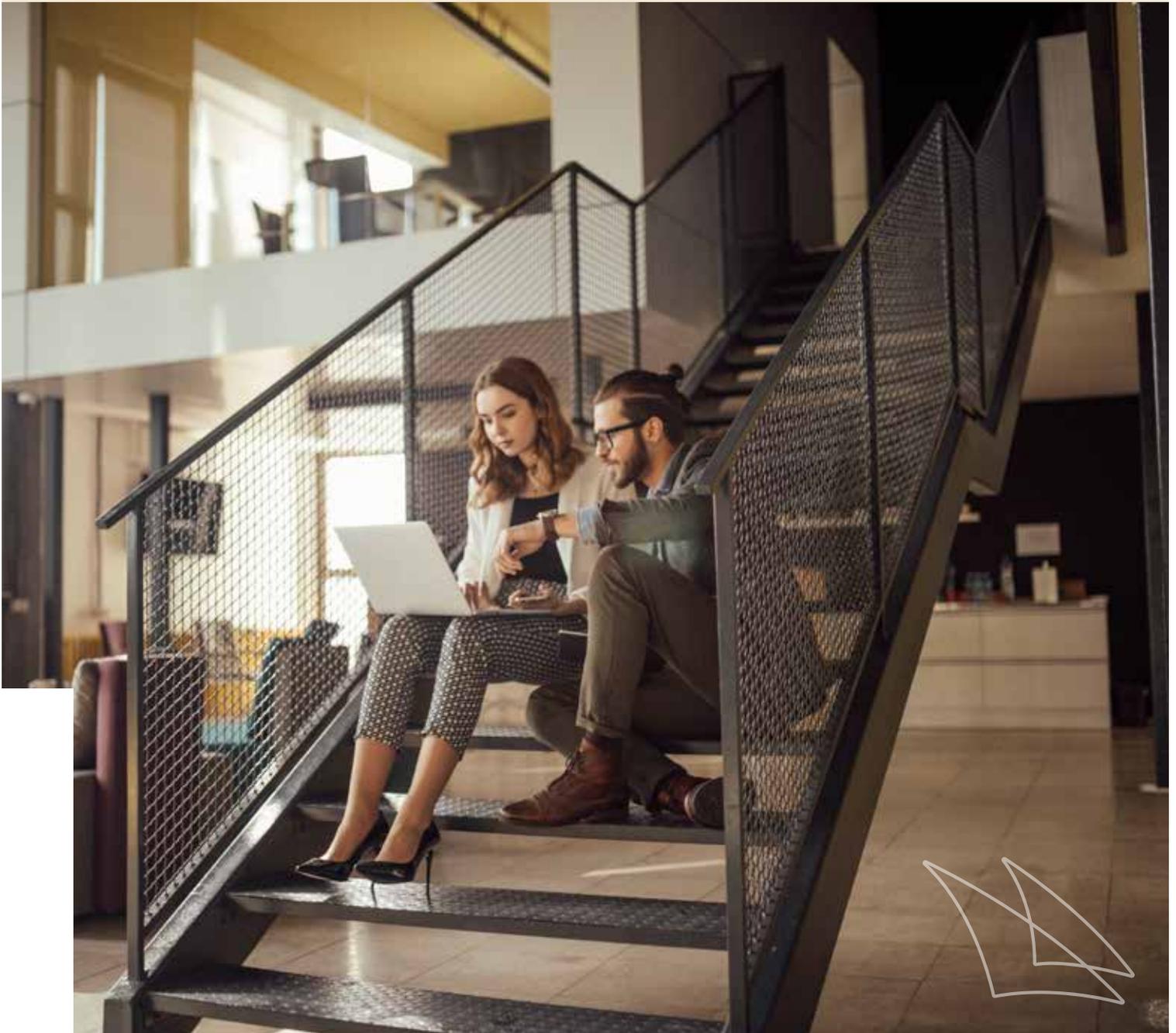


Table of contents

04 Foreword

05 Executive summary



07

Family values and value creation

- 07 The Family 1000 database
- 08 Profile of the family universe
- 11 The operating model
- 15 From value creation to alpha generation



19

Family-owned businesses: Innovation in action

- 19 R&D spending: Family-owned businesses are more conservative
- 20 Possible reasons why family-owned businesses spend less on R&D
- 23 Socioemotional wealth preservation and family control
- 24 Family ownership drives higher innovation output despite lower R&D spending
- 25 Is R&D spending the right measure for innovation input?
- 25 Conclusion
- 25 Bibliography

About the Credit Suisse Research Institute (CSRI)

The Credit Suisse Research Institute (CSRI) is Credit Suisse's in-house think tank. It was established in the aftermath of the 2008 financial crisis with the objective of studying long-term economic developments, which have – or promise to have – a global impact within and beyond the financial services industry. The Institute builds on unique proprietary data and internal research expertise from across the bank and in collaboration with leading external specialists. Its flagship publications, such as the Global Wealth Report, regularly attract more than 100,000 readers online, generating high press coverage and over three million impressions on social media. Further information about the Credit Suisse Research Institute can be found at www.credit-suisse.com/researchinstitute.



27

Family values in practice and in theory

- 27 Interviews with CEOs Simon Michel, Tony Smurfit and George Weston
- 32 Interview with Professor Thomas Zellweger from the University of St. Gallen



35

The emerging founder landscape

- 35 Emerging founders
- 36 The global unicorn landscape
- 37 Regional and industry mix of new "start-ups"
- 38 The unicorn "ecosystem"
- 39 Looking ahead...decarbonization shaping the founder landscape



45

Credit Suisse Family Business Survey

50

General disclaimer / important information

Authors:

Richard Kersley
Joelle Natzkoff
Hafsa Yasir

Editorial deadline: 17 March 2023
Cover photo by Anchiy, Getty Images

For more information, contact:

Nannette Hechler-Fayd'herbe
Chief Investment Officer for the EMEA region and Global Head Economics & Research of Credit Suisse
nannette.hechler-fayd'herbe@credit-suisse.com

Richard Kersley
Managing Director, EMEA Securities Research, and Head of Global Product Management, Credit Suisse
richard.kersley@credit-suisse.com

Foreword

We are pleased to present the latest study from the Credit Suisse Research Institute “The Family 1000: Family values and value creation,” which explores the business model and investment performance of listed family- and founder-owned businesses, and is the latest in a series of studies we have published on the theme. The report also complements recent work Credit Suisse has published on Single Family Offices, with the launch of our Single Family Office Index.

In keeping with the approach of the Research Institute, the study leverages unique and proprietary data. The Credit Suisse Family 1000 dataset profiles a universe of 1,000 major family-owned businesses stretching across the Americas, Europe and Asia Pacific, charting the performance and experience of non-family stakeholders invested in owner/operator businesses. A special focus of the report is on the role that family businesses play in innovation and research and development. We present a range of factors that drive superior “innovative output” in family businesses.

We would like to extend a special thank you to Simon Michel, Tony Smurfit and George Weston, CEOs of Ypsomed, Smurfit Kappa and Associated British Foods, respectively, and also Professor Thomas Zellweger of the University of St. Gallen, who share their personal thoughts on how family ownership or heritage can influence investment decision-making, risk appetite and corporate culture. Their insights support many of our own conclusions.

Family businesses represent an important part of listed equity universes in a number of markets and understanding them well provides a deeper insight into equity investment opportunities. With this in mind, we hope you find this latest analysis of the motivations and drivers of founder- and family-led companies highly thought-provoking and wish you an enjoyable read.



Nannette Hechler-Fayd'herbe
Chief Investment Officer EMEA and
Global Head of Economics & Research
Credit Suisse



Richard Kersley
Managing Director, EMEA Securities Research,
and Head of Global Product Management,
Credit Suisse

Executive summary

The Credit Suisse Research Institute has been conducting analysis into the owner/operator business model of listed family-owned businesses since 2006. In our series of studies, we have explored whether such companies display a markedly different business model and ultimately create superior shareholder value to the benefit of non-family stakeholders. To conduct our research, we have built, proprietary to Credit Suisse, the “Family 1000” dataset, a universe of 1,000 major family-owned businesses stretching across the Americas, Europe and Asia Pacific, the latter being home to more than half of them. In this report, we refresh our universe and revisit our previous statistical analysis of the operational and share price performance of listed family businesses.

As we re-examine the share price performance of family businesses, we find our global Family 1000 universe has generated an annual sector-adjusted excess return of 300 basis points since 2006, consistent across all regions, with some outsize returns in the smaller-capitalized companies. Performance is stronger in the earlier-generation companies, perhaps reflective of the earlier stage of their entrepreneurial lifecycle and the stronger growth that accompanies it. Later generations can face impediments to growth due to issues related to succession. In 2022, “quality” as an investment style suffered in a world of rising bond yields and saw family-business performance reverse sharply by around 700 basis points as its high-return model is a “quality” model.

A special focus this year is the topic of innovation and family businesses, where we ask whether a level of financial conservatism, particularly among later generations, hampers innovation. An analysis of our Family 1000 universe finds family-owned companies spending less on research and development (R&D) than their non-family counterparts. Academic evidence has also revealed similar observations. While we discuss a number of reasons for potentially more conservative R&D spending or “innovative input” by family-owned companies, we also show

evidence that family-owned companies can generate a higher “innovative output” thanks to higher company-specific human capital generated from longer employee tenures, stronger social capital and a more efficient operating model.

Alongside our statistical analysis, we have conducted interviews with three CEOs of leading owner/operator European companies – Simon Michel, CEO of Ypsomed, Tony Smurfit, CEO of Smurfit Kappa, and George Weston, CEO of Associated British Foods – as well as an interview with Professor Thomas Zellweger of the University of St. Gallen, who is an expert in family-business research. We complement this with a survey of 100 family businesses touching on similar issues.

In our discussions, we specifically focus on how the owner/operator model can influence risk appetite, innovation, company culture and corporate governance, as well as address the issues related to succession. Among the takeaways, the perceived importance of a longer-term time horizon to create shareholder value, the preservation of an entrepreneurial culture, community engagement and an acute awareness of the importance of visible best practices stood out.

The family and founder businesses we look at in the Family 100 survey are listed businesses. The theme is dynamic, of course, with new companies being founded and ultimately finding their way into the listed space. With this in mind, we also highlight emerging founder businesses by diving into the world of “unicorns.” We list the top 100 unicorns globally and their role in the corporate landscape, recognizing that these may be future first-generation members of the Family 1000 universe. Equally important as new technology and connectivity, we expect themes of sustainability and decarbonization to be powerful influences on new emerging businesses.

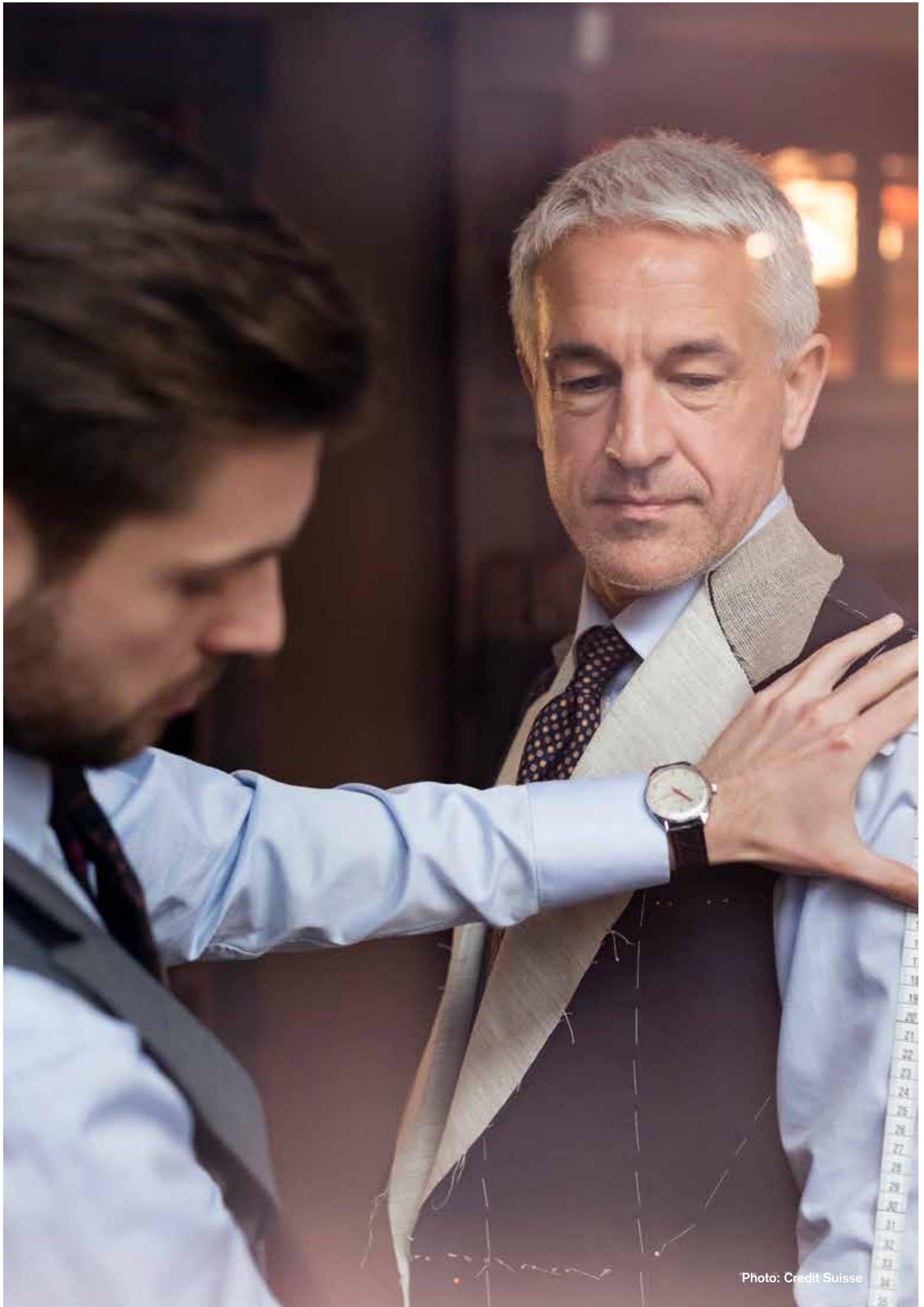


Photo: Credit Suisse

Family values and value creation

The Credit Suisse Research Institute has been analyzing the performance and characteristics of companies since 2006 in which their founders or family members still remain central in the running of the business. We have aimed to explore whether such companies display a markedly different business model and ultimately create superior shareholder value to the benefit of non-family stakeholders. To underpin our analysis, we have developed, proprietary to Credit Suisse, the “CS Family 1000” database, which consists of approximately 1,000 publicly globally listed companies in which the founders or their relatives own an equity stake of more than 20%. In this new edition, we refresh our universe and re-examine its financial and ESG profile and, most importantly, the performance of listed family-owned businesses. The year 2022 proved to be a challenging backdrop, but the long-term trend of alpha generation is still visible.

The Family 1000 database

The CS Family 1000 database consists of publicly listed companies from all regions. There is no official definition of family companies, but to define them for the purpose of our analysis we apply two basic criteria. The companies included in our database meet at least one of the following:

- The founder or his or her family owns at least 20% of the company’s share capital.
- The founder or his or her family controls at least 20% of the company’s voting rights.

To be clear, there is no science in our definition as to what constitutes family-owned or founder-owned companies. Longevity of companies, the respective generations involved and the size and nature of family holdings are all topics of debate as to what constitutes a genuine family business.

However, while adhering to our simple definition for the purpose of our overall analysis, we do break down the data to consider these differences within the dataset.

Constructing this database has been a manual process drawing off a range of publicly available data sources. However, despite our best efforts, it is entirely possible that more publicly listed companies exist that meet one or both of our criteria, but are absent from our universe. We update the universe as more information becomes available. Nevertheless, we believe that the spread of the stocks included in the report in terms of size, sector and location provides more than sufficient breadth and depth for substantive analysis.

Reviewing our dataset

While there is typically – and unsurprisingly – very limited fluctuation in our family universe, the update we provide in this report for the end of 2022 reveals some modest revisions since our

2020 edition, with the total number of companies falling slightly from 1,061 in 2020 to 1,005 currently. There can be three possible reasons for changes to our database. First, a company might go out of business or be de-listed and therefore drop out of our family universe. Second, the shares held by the founder or family may fall below our 20% threshold. Third, we find new companies that meet our criteria and add them to our universe. **Table 1** details the nature of the changes since our last report. **Table 2** lists the most prominent companies by size and age in various regions.

Profile of the family universe

Regional and sector mix

The CS Family 1000 has a significant regional country skew in its makeup. Fifty percent of the universe is in Asia Pacific, with developed European family-owned companies making up 24% of the database and North America contributing 15%. This regional mix is very similar to previous editions, with a concentration of family-owned listed companies in the emerging world.

Using the Global Industry Classification Standard (GICS) Level 1 sector classification developed by the MSCI and S&P Dow Jones Indices, we find in industry terms that 30% of our universe consists of companies in the consumer discretionary or consumer staple sectors.

We would point out that this picture changes considerably when observed in market capitalization terms. Our database has a total market capitalization of USD 13.7 trillion and, while North American companies make up just 15% in terms of the number of constituents, they contribute 40% of the database's market capitalization. Correspondingly, the share in market capitalization terms of those companies from the Asia Pacific (APAC) region has fallen to 29%. When we look at the size effect by sector, we note that communication service companies change the structure of the family-owned universe the most. While they only contribute 8% of the number of constituents in our database, they make up 17% of the universe based on market capitalization.

Generational profile

Looking at family businesses through the lens of a company's age or the effective generation of its ownership is arguably one of the most important considerations and a topic we touch on throughout the report. It has potential relevance for the risk appetite inherent within the management. Does risk appetite decline with age and impede innovation? The issue of succession also comes into the conversation as one moves into later generations. Does this adversely impact financial performance?

Table 1: Changes in the CS Family 1000 since 2020

Region	2020	De-listed/out of business	No longer family business by our definition	New additions	2022	Change
EMEA	311	27	16	16	285	-8%
North America	147	6	7	11	146	-1%
APAC ex. Japan	520	10	18	7	498	-4%
Latam	63	3	3	0	57	-10%
Japan	20	0	1	0	19	-5%
World	1,061	46	45	34	1,005	

Source: Credit Suisse Research

Table 2: Selection of largest and oldest family and founder companies globally

Largest companies	Market cap. (USD bn)	Oldest companies	Founding year
APAC			
Samsung Electronics	280	Bank of Philippine Islands	1851
Reliance Inds	193	BBTCL	1863
TCS	152	HK & S Hotels	1866
Keyence	102	Nippon Paint HD	1881
JD.com	73	Berli Jucker Public Company Limited	1882
SoftBank Group	71	Dabur India	1884
PT Bank Central Asia Tbk	70	Wharf Holdings	1886
Fast Retailing	61	Indian Hotel	1899
NetEase	57	CLP Holdings Limited	1901
Midea Group	54	Siam Commercial Bank	1904
Bharti Airtel	52	Tata Steel	1907
Baidu	50	Melco International	1910
Fortescue Metals Group Ltd	48	Taisho Pharmaceutical Holdings	1912
Bajaj Finance	47	Siam Cement	1913
Chugai Pharmaceutical	43	United Plantatn	1917
Developed Europe			
LVMH	433	Orkla	1654
Roche	246	Merck KGaA	1668
L'Oreal	220	Wendel	1704
Hermes International SCA	192	Jeronimo Martins	1792
Christian Dior	154	Miko	1801
Anheuser-Busch InBev	121	D'leteren Group	1805
Inditex	94	Bucher Industries	1807
Merck KGaA	85	Sedlmayr Grd	1807
Cie Financiere Richemont SA	81	Thyssenkrupp	1811
Volkswagen	81	Exmar	1829
Kering	77	Bossard Holdg	1831
BMW	69	Hermes International SCA	1837
Heineken	59	Oeneo	1838
Dassault System	53	Carlsberg	1847
Maersk	43	Robertet	1850
North America			
Alphabet	1177	Jose Cuervo	1758
Tesla	624	Molson Coors Beverage Company	1786
Meta Platforms, Inc.	446	John Wiley	1807
Walmart Inc.	397	New York Times	1851
Berkshire	274	Scotts Miracle	1868
Oracle Corporation	232	Brown Formn	1870
Nike Inc.	188	American Fnl Grp	1872
Comcast Corp.	160	Watts Water	1874
Blackstone Inc.	111	Greif	1877
The Estee Lauder Companies Inc.	89	E W Scripps	1878
HCA Healthcare	71	George Weston	1882
The Hershey Company	64	Haverty	1885
ThomsonReuters	59	Indust Penoles	1887
Ford Motor	58	Hormel Foods	1891
Enterprise Prodt	56	The Hershey Company	1894

Source: Credit Suisse Research

In the report, we calibrate age by the number of generations representing a company since its founding date. Each generation is assumed to span 25 years. Based on this assumption, almost 60% of our database is made up of companies in their first two generations. The younger companies tend to be located across APAC, whereas most older companies, especially those aged 100 years or older, tend to be in Europe.

“
Looking at family businesses through the lens of a company’s age or the effective generation of its ownership is arguably one of the most important considerations

When we discuss family businesses in terms of market size in the report, we define small-cap companies in our universe as those that have a market capitalization of USD 3 billion or less. Large companies are defined as having a market capitalization of at least USD 7 billion, while the remaining companies are seen as mid-cap stocks. Small-cap family-owned companies typically make up close to 40% of constituents in most regions, with the exception of North America, where they contribute less than 20%.

Figure 1: CS Family 1000 by geography (by number of companies)

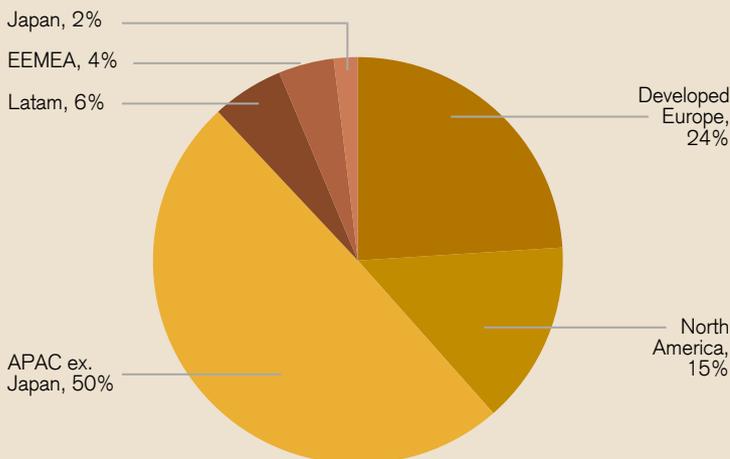


Figure 2: CS Family 1000 by sector (by number of companies)

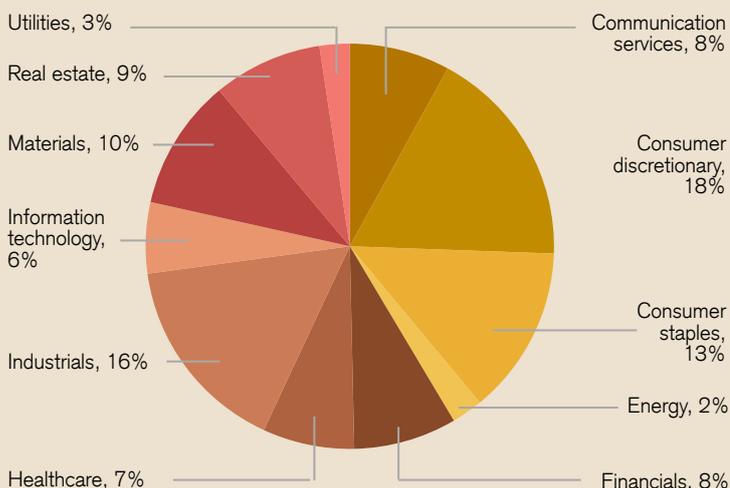
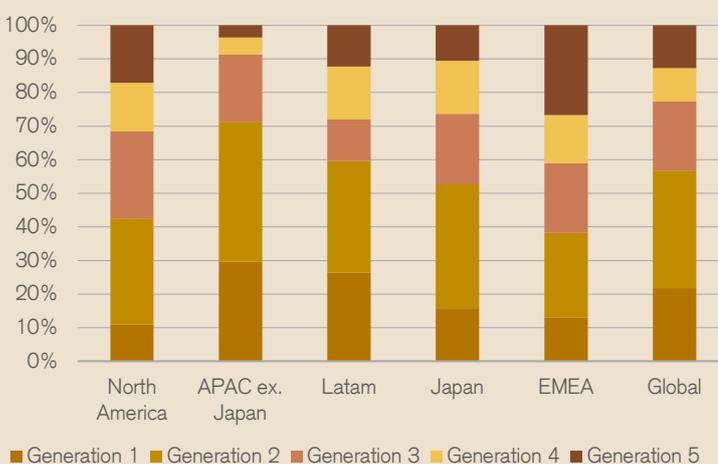


Figure 3 CS Family 1000 by generation (share of total number of companies)



Source Figures 1–3: Credit Suisse Research

Figure 4: Our family-owned universe by age

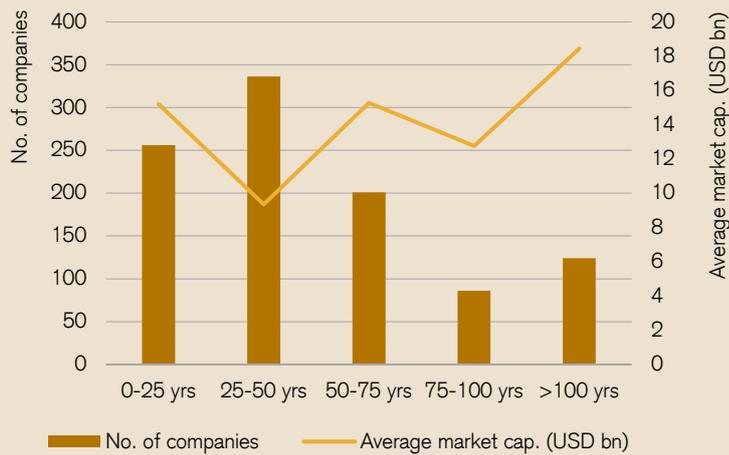


Figure 5: CS Family 1000 by company size (share of total number of companies)

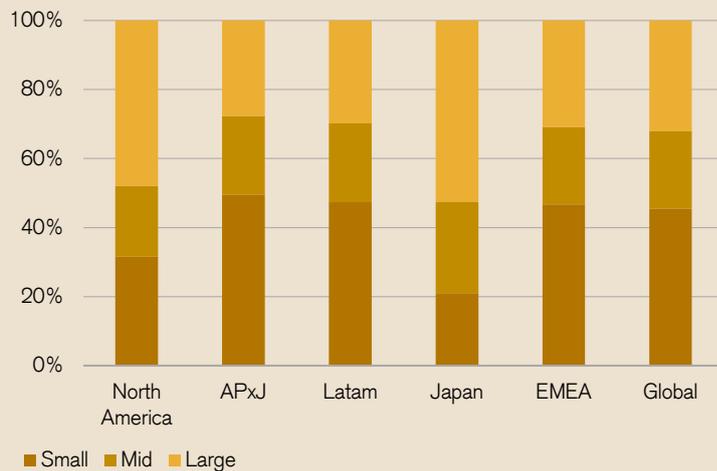
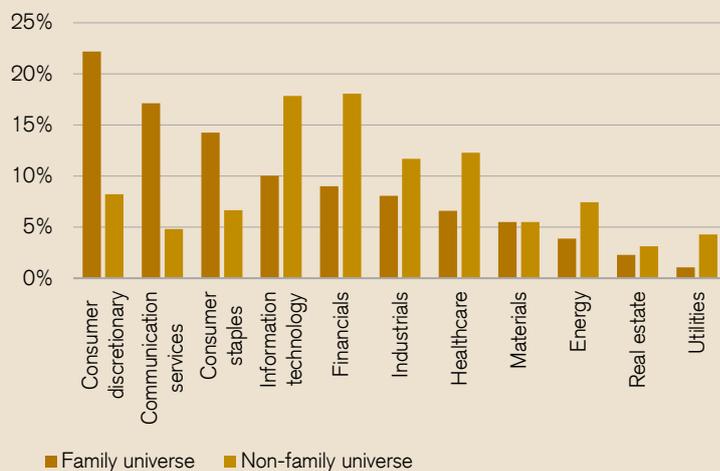


Figure 6: CS Family versus non-family-owned companies by sector (market-weighted)



Source Figures 4-6: Credit Suisse Research

Non-family control group

For purposes of comparing the financial characteristics and stock performance of our family-owned universe, we have established a “non-family” control group of companies. To ensure sufficient regional and sectoral coverage, this extends to over 6,000 stocks, well beyond the MSCI All Country World Index, which itself naturally includes many of the constituents in our family universe. The weightings of the family and non-family universes differ considerably by sector as shown in **Figure 6**. We take account of this when analyzing stock price performance and profiling the financial characteristics of the respective groups below.



Family businesses have typically been more conservatively financed, reflected in lower financial leverage

The operating model

Our portrayal of family businesses in prior reports has been one of higher-return businesses often displaying superior top-line growth. Despite their growth attributes, they have typically been more conservatively financed, reflected in lower financial leverage. Their environmental, social and governance (ESG) credentials have been a subject of debate, with ratings for the “G” often inferior to the non-family controlled businesses in the calculations of the ESG rating agencies, although the “E” and the “S” have been more impressive. Do these observations still hold true?

We explore this statistically in the discussion below and also later in the report with a “hands-on” perspective via discussions with CEOs of listed companies and also the perspective of a leading academic in the field of family business research.

Figures 7 to 11 roll forward revenue growth, margins, leverage and cash flow returns on investment (CFROI®) for our family universe versus our control group of non-family businesses from our previous edition, extending the data from 2019 to year-end 2021 (the last financial year for which we have comprehensive final data). We have adjusted for sector differences in the respective universes and weighted each stock according to the most relevant financial metric shown (e.g. revenue growth is weighted by the revenue of the stock concerned).

The observations we have made in the past have largely continued to hold. Revenue growth (**Figure 7**) in our family universe has exhibited a premium over time, if declining. While the longer-term global average has been around 4%, it has slipped more recently to around half of that. In terms of margins, the pattern has been somewhat volatile from year to year and, in contrast to the relative trend in revenue growth, shows an uptrend over time. The latest reading of almost 3% is around 1% above the average of the 15-year period shown.

“ Family-company returns have consistently reflected a premium in each region

Figure 9 looks at profitability through the lens of cash flow returns (CFROI). Family-company returns have consistently reflected a premium in each region over their non-family counterparts of between 1.5% and 2.0% over time, with the latest reading more or less in the middle of that range. The level of returns shown has been above the market discount rate over the period, thus showing a sustained track record of absolute value creation by family businesses.

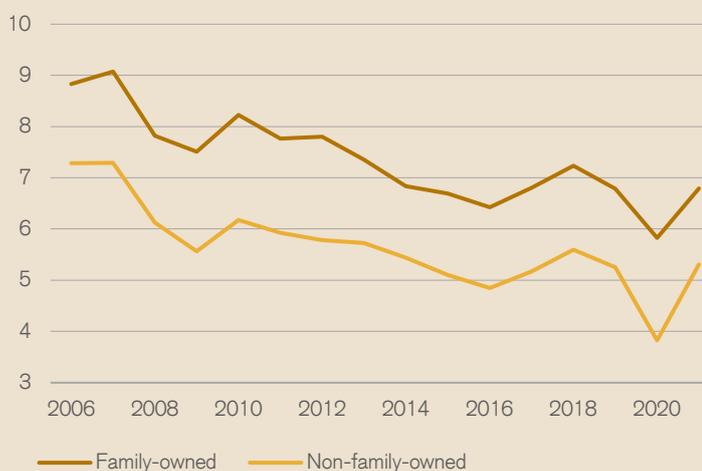
Figure 7: Revenue growth difference between family-owned and non-family-owned companies



Figure 8: EBITDA margin difference between family-owned and non-family-owned companies



Figure 9: CFROI levels of family- and non-family-owned companies



Source Figures 7–9: Credit Suisse Research

Figure 10: Average net debt/EBITDA for family-owned and non-family-owned companies

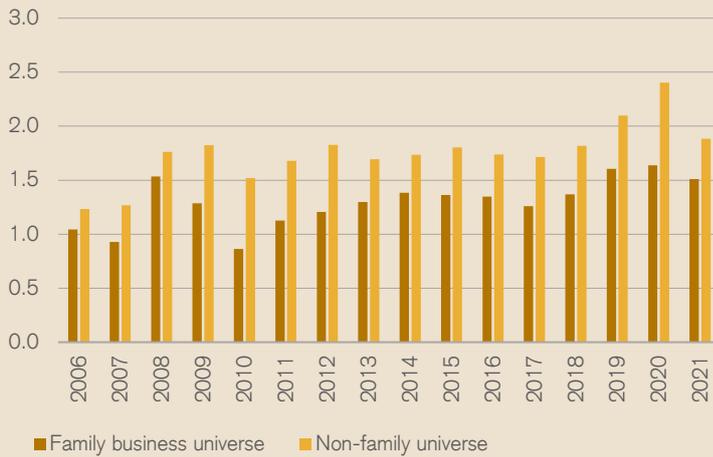


Figure 11: Net debt/EBITDA for small versus large family-owned companies



Source Figures 10 and 11: Credit Suisse Research

Figure 12: Median dividend payout ratio has generally been higher for family-owned businesses than non-family-owned businesses



Source: Company data, Credit Suisse estimates

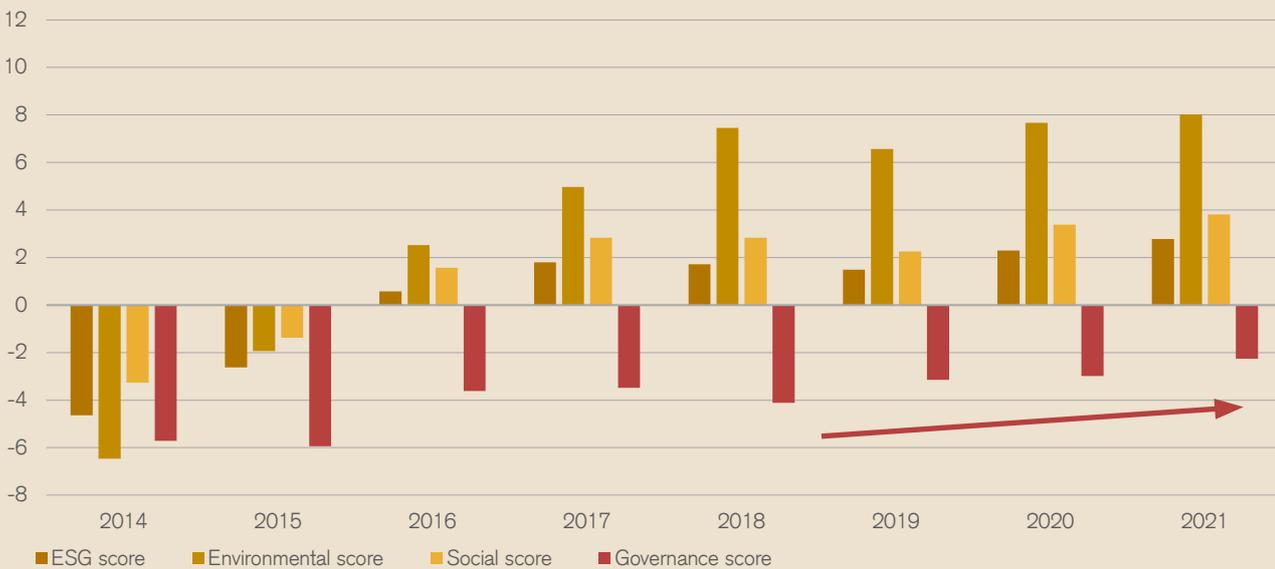
Where leverage is concerned, we continue to see a consistently more conservative approach by family businesses toward debt, with net/EBITDA averaging 25% lower over time. Leverage in absolute terms did steadily increase for family businesses from its lows after the global financial crisis, presumably supported by exceptionally low rates, reaching the highest levels we have seen throughout the period of our research until 2020, when profitability came under pressure due to the COVID pandemic. This was particularly the case among smaller companies that have also been slower to subsequently de-gear relative to larger companies.



An important question, however, is whether undue conservatism can impede innovation in the longer term

The notion of a lower-leveraged model is perhaps consistent with an acute awareness of preserving and not risking the longevity and heritage of the business, and ensuring stability. An owner/operator is likely to be more attuned to this aspect. As well as reducing perceived risks, a lesser dependency on external providers of capital, debt or equity, would of course also resonate with the idea of maintaining essential “control” of the business and its longer-term direction. An important question, however, is whether undue conservatism can impede innovation in the longer term. Our focus on innovation in Chapter 2 reflects on this.

Figure 13: Average ESG scores for family-owned relative to non-family-owned companies



Source: Credit Suisse Research, Refinitiv

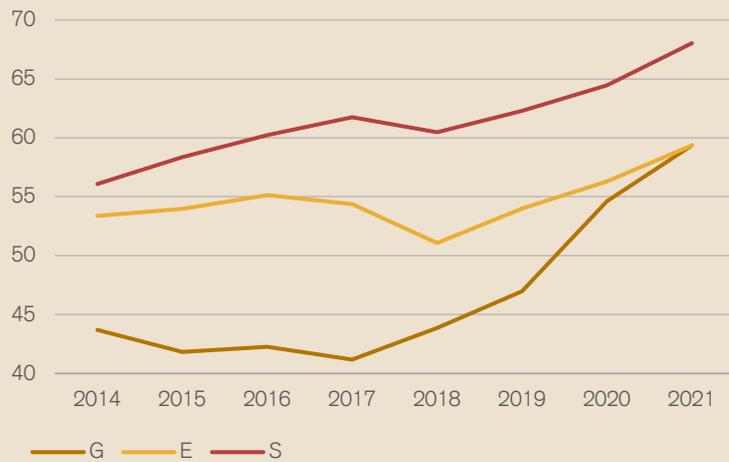
ESG characteristics – improving governance

In our last edition of the Family 1000 series (“The Family 1000: Post the pandemic”), we conducted an in-depth examination of the ESG characteristics of family businesses and specifically a focus on the ratings accorded to our universe by Refinitiv. While some caution should always be exercised with such ratings when looked at in isolation, the picture that nonetheless emerged was that, in general, ESG scores for family businesses compared favorably to those of non-family businesses after having improved steadily over the years as **Figure 13** shows.

However, we found the mix of scores noteworthy, not least given the skeptical views that investors have often expressed about corporate governance in family businesses. While the environmental and social scores for family businesses were superior for the family cohort, governance consistently fell short by way of comparison. However, the pattern emerging is now one of steady improvement, with the gap narrowing to the smallest gap seen so far in our data. We have not shown a breakdown for 2022 in **Figure 14** given the sample size. However, based on the data available, this trend appears to have continued.

Later in the report, we relate the feedback from the corporates we engaged with on their views and approaches to ESG. The issue of governance was a firm focus within the companies concerned, with all of them regarding the adherence to public company best practice

Figure 14: ESG scores over time for European family-owned companies



Source: Credit Suisse Research, Refinitiv

and the recognition by outside shareholders of this fact as crucial. The strong scores displayed for social factors also chimed with our discussions. The importance of an enduring culture, an appreciation and preservation of the human capital in the business, and strong community engagement were consistent themes.

From value creation to alpha generation

Whatever the family motivations and outcomes they deliver by way of profitability, the key question for us in our prior research has been how rewarding the experience has been for the non-family stakeholder investing in companies with an owner/operator model. **Figure 15** charts the long-term history in share price performance terms of our Family 1000 universe versus our control group of non-family businesses. In keeping with our comments above, this is shown on a market-capitalization-weighted and sector-adjusted basis.

At a headline level, the story that emerges is one of steady long-term outperformance. Based on data that runs from 2006 to date, the chart shows that our overall universe of family-owned companies outperformed the non-family-owned group by an annual average of around 300 basis points (**Table 3** overleaf).

While not shown here, we note that a comparison based on an equal-weighted and sector-unadjusted basis would have yielded an even greater outperformance.

Other than in Japan, on a regional level basis, we find share price outperformance to be similar at between 300 and 360 basis points on average per year. There is an apparent size bias in that smaller family-owned companies generated more than double the level of excess return than larger family-owned stocks.

“
In general, ESG scores for family businesses compared favorably to those of non-family businesses

Figure 15: Family-owned companies outperformed since 2006



Source: Credit Suisse Research, Refinitiv

Table 3: Relative performance statistics since 2006 – Family 1000 versus non-family

	CAGR since 2006 (until December 2022)				2022			
	Overall	Small	Mid	Large	Overall	Small	Mid	Large
Global	3.0%	5.4%	4.0%	2.3%	-7.0%	2.1%	6.7%	-8.5%
Developed Europe	3.6%	3.3%	2.2%	3.0%	-6.4%	-1.7%	-5.2%	-6.8%
USA	3.4%	1.3%	5.4%	2.5%	-5.1%	-1.0%	-11.0%	-4.7%
APAC ex. Japan	3.3%	3.9%	3.1%	1.6%	-3.8%	-3.6%	7.2%	-4.9%
Japan	7.1%	8.8%	1.5%	10.5%	-0.5%	-8.8%	34.7%	-0.7%
Latam	3.1%	1.7%	4.0%	4.4%	-2.6%	-2.6%	-11.3%	-8.7%

Source: Credit Suisse Research, Refinitiv

Figure 16 looks at the performance of family-owned companies by generation. We find the strongest outperformance occurs in the early generations. Generations 1 and 2 have delivered compound returns approaching double that of Generations 4 and 5 or later. To rationalize these differences, one might argue that the early generation companies by their nature are at an earlier stage of the entrepreneurial lifecycle and reflect stronger growth accordingly. Equally, the later generations may be facing impediments to growth as issues related to succession become more prevalent. We also find, in Asia in particular, that some of the later-generation businesses are more conglomerate in nature and perhaps less focused businesses, potentially to the detriment of returns. This may also be a consideration.

Aside from these more qualitative explanations, we would note statistically in **Figure 17** that there is a skew in the return profile measured by CFROI of family businesses by generation. The earlier generation businesses display higher returns versus their later generation counterparts, which does align interestingly with the differing share-price-performance profile.

2022 proves to be a more challenging environment

As impressive as the long-term trend has been, the year 2022 was very challenging, with our family business index underperforming our non-family control group by 7%. In fact, a number of the trends above were turned upon their head, notably the generational pattern as shown in **Figure 18**

Figure 16: Performance of family-owned companies by generation since 2006



Source: Credit Suisse Research, Refinitiv

Figure 17: Gross investment-weighted CFROI – average from 2006 to 2021

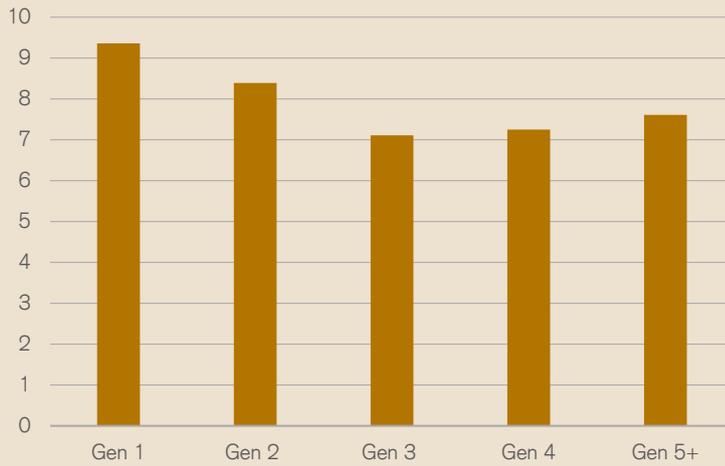


Figure 18: Generation bar charts comparing 2022 with CAGRS since 2006

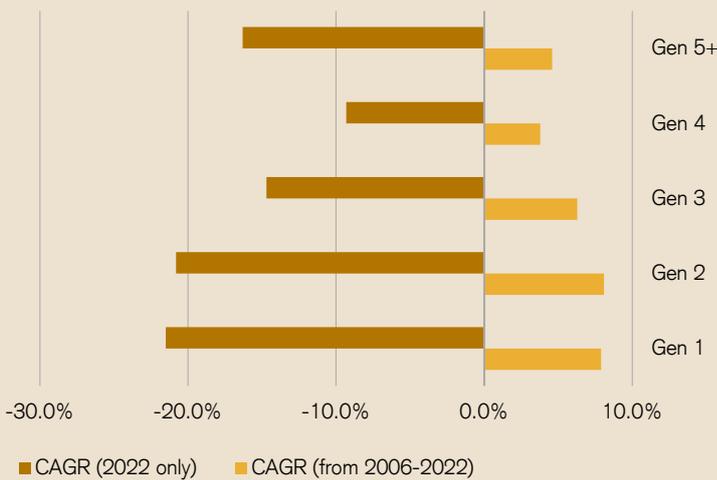


Figure 19: Bond yields and family-business performance



Source Figures 17–19: Credit Suisse Research, Refinitiv

depicting 2022 as almost a mirror image of the long-term pattern. While 2023 has seen the underperformance begin to reverse, it is worth reflecting on potential factors in play.

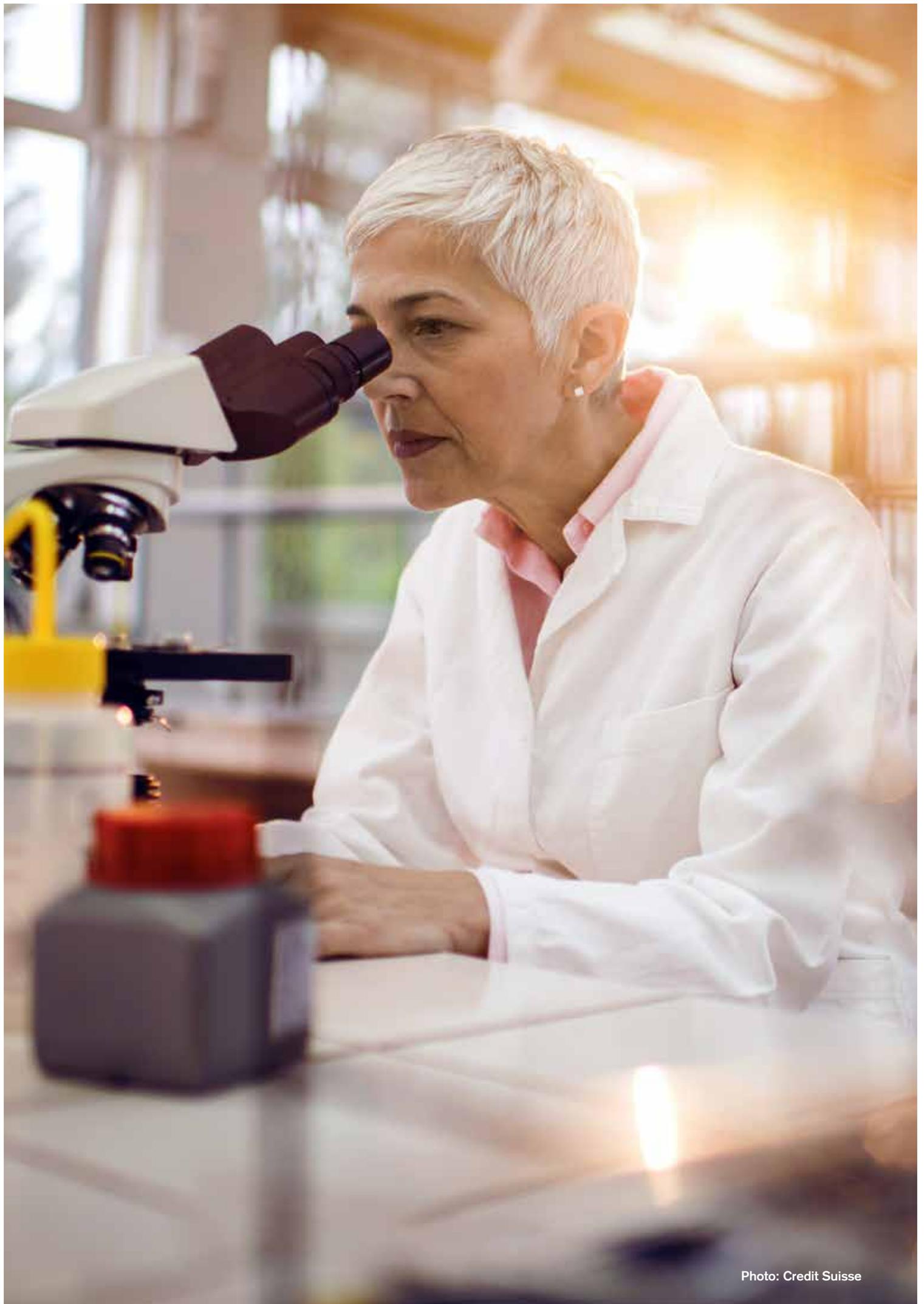
With regard to the pronounced underperformance, we would highlight two considerations that are arguably linked. First, “quality” as an investment “style” performed poorly in 2022 amid a world of rising bond yields. As we have shown in other research, high CFROI businesses very much fit the “quality” label. The family-business model is a high CFROI one.

Figure 19 focuses on the trends in bond yields (inverted) and family business relative returns. While not a perfect relationship, major upward movements in bond yields do correlate with poor periods for the “quality” family-business model.

Second, the sharp underperformance of the first-generation companies would be consistent with the notion of higher-return businesses struggling in share price terms. However, we would also note that many of the high-profile major technology stocks that were affected so severely in 2022 would also be found here adding downward pressure on performance.

Concluding remarks

As we revisit the family business model in 2023, we find the same high return “quality” business model on display. The improving scores for governance are also noteworthy. However, 2022 was a difficult year for the non-family shareholder investing in these stocks, with the family “alpha factor” we have highlighted in the past seeing a sharp reversal. It was not a year for “quality.” However, in many respects, the setback in 2022 has only unwound the exceptional outperformance driven by major technology companies in 2021, and restores relative performance back to longer-term trend levels. While nothing can be taken for granted, there appears to be a resumption of the longer-term uptrend in 2023 so far. In the next chapter, we wish to explore how the financial model of family businesses laid out here may interact with innovation. Does the model visibly reflect a conservatism that hinders innovation?



Family-owned businesses: Innovation in action

In this article, we explore whether family-owned businesses may have a different approach to innovation compared to non-family-owned businesses. Family-owned businesses can be shown to spend less than their non-family-owned counterparts on research and development (R&D). They have a lower risk appetite and objectives that extend beyond profit maximization compared to non-family-owned businesses. However, several academic studies have found that family-owned companies generate a higher innovation output. We delve into the reasons why and find that family-owned companies enjoy stronger human and social capital, and a potentially more efficient operating model. We believe these factors help to enhance the ability of family-owned firms to transform an innovative idea into a profitable proposition more effectively than non-family-owned companies.

R&D spending: Family-owned businesses appear more conservative

We use the ratio of R&D to sales as a barometer for innovation spending for businesses. We acknowledge that this is an imperfect measure that does not account for a company's ability to incubate and scale up ideas. However, it is an accessible datapoint for listed companies and perhaps the closest approximation of a quantitative measure of innovation. Moreover, it allows for a like-for-like comparison between family-owned and non-family-owned businesses. Hence, this approximation is widely used in academic literature for this purpose.

Academic literature has demonstrated that family-controlled companies spend less on R&D than non-family-controlled companies. The idea that family-owned businesses may be less keen

to innovate may be a contradiction since they are first and foremost born out of an innovative idea. Yet our dataset confirms this notion through our sample of family-owned companies, although less so for companies based in the Asia-Pacific (APAC) region. Across the CS Family 1000 universe of companies, we find that the median family-owned company spends less (3.5% of sales) than the median non-family-owned company (6.6%) on R&D annually. **Figure 1** overleaf shows that this trend has worsened in more recent years.

The conclusions we observe globally do not resonate in equal measure across regions. While family-controlled companies have tended to spend less than their non-family-controlled counterparts on R&D in the USA (7.4% versus 12.0%) and Europe (4.4% versus 5.2%), the APAC region shows a different story, whereby family-owned businesses have typically been

spending slightly more than their non-family-owned counterparts (3.2% versus 2.7%) as **Figure 2** illustrates.

Possible reasons why family-owned businesses spend less on R&D

Many reasons have been put forward to address the divergence in attitudes between family-owned companies and non-family-owned companies. For example, it has been argued that family-owned businesses tend to exhibit a lower willingness and potentially lower ability to take risk stemming from a more conservative capital structure, family wealth concentration and a more generous dividend policy. Moreover, while microeconomic theory generally assumes that a business' core objective is profit maximization, there are several additional considerations that are relevant for family-owned businesses. These include the owner family's desire to retain control of the company as well as the protection of the family's socioemotional wealth (SEW).

“
The notion that family-owned firms are more averse to taking risks than non-family-owned businesses may be paradoxical

Do family-owned businesses exhibit lower risk appetite?

The notion that family-owned firms are more averse to taking risks than non-family-owned businesses may be paradoxical. In many cases, family-owned businesses descend from business founders with a strong risk appetite. However, for a variety of reasons, family-owned companies may tend to be more conservative when it comes to making investment decisions. A founding entrepreneur (perhaps more aligned with the risk profile of a start-up manager), with a strong

Figure 1: CS Family 1000 companies have spent less on R&D compared to non-family-owned companies every year (global)

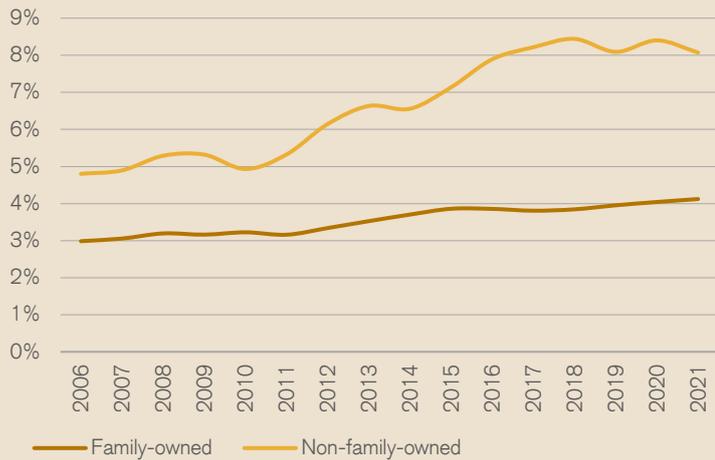


Figure 2: Average R&D spending as a percentage of sales over the last 15 years

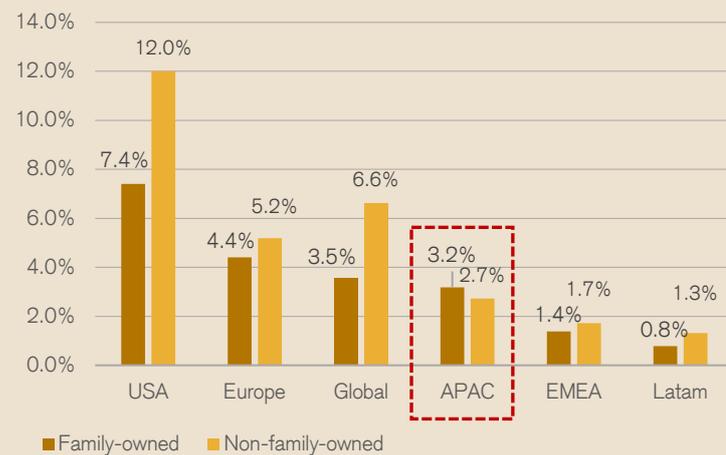
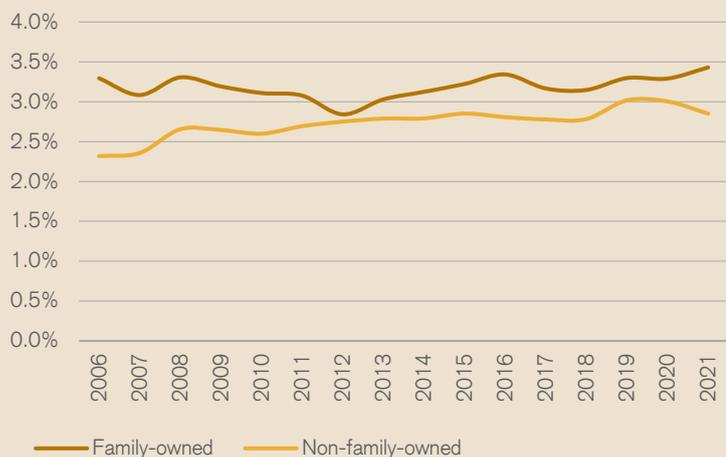


Figure 3: CS Family 1000 companies have spent less on R&D compared to non-family-owned companies every year (APAC)



Source Figures 1-3: Company data, Credit Suisse estimates

motivation to succeed and not much to lose, might have a higher risk appetite than his or her heirs whose primary strong motivation when making business decisions might be to avoid losses as well as to preserve wealth for future generations. Our conversations in the following chapter with the CEOs of three owner-operated companies confirmed the higher degree of conservatism borne out of family ownership.

More conservative capital structure among family-owned businesses

Family-owned companies are financially less leveraged than non-family-owned companies. Our Family 1000 database illustrates that, across regions and industries, family-owned companies are financed more conservatively and have higher liquidity than their non-family-owned counterparts. The median net debt to EBITDA ratio is 1.0x compared to 1.2x for non-family-owned businesses, as we showed in Chapter 1.

Figure 4: Median dividend payout ratio has generally been higher for family-owned businesses than non-family-owned businesses

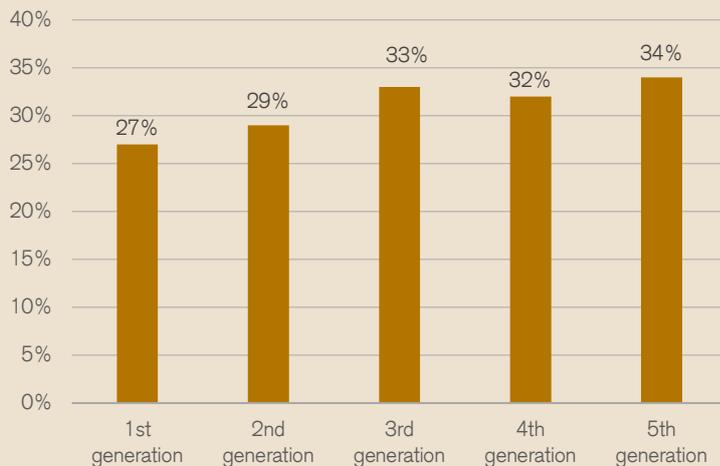


For many companies, especially in the early stages of their lifecycles, financial leverage can be the fuel that powers investment in innovation. By contrast, family-owned companies are more likely to make use of retained earnings to finance investment. This could potentially contribute to a relatively slower pace and smaller scale of R&D spending for family-owned companies compared to non-family-owned businesses. Moreover, family-controlled firms may prefer to use less leverage as they progress through the generations (Hughes, Garcia (2020)). Early generations of family-owned businesses tend to use more leverage as a source of funding in order to retain family control (rather than use equity, which dilutes family ownership through a broader external shareholder base). However, the use of leverage decreases as the family's wealth grows and more conservative financing becomes preferable.

Larger wealth concentration in the business deters risk-taking

Family-business owners tend to have large holdings of family wealth invested in their businesses and, in some cases, across several generations. This results in a concomitant relationship between the family and the company and has been cited as a factor that could hold back the willingness of family-owned businesses to take on additional risks and hence explore innovation projects. According to Huybrechts & Voordeckers (2020) and Lybaert (2013), family-owned businesses might lean more favorably toward decisions that prioritize long-term survival over potential growth opportunities, which come with a higher risk factor. De Vries (1993) points out that this can also result in a desire for family-owned companies to ensure (multi-generational) continuity. By contrast, executives of non-family-owned businesses, while they may have been allocated equity shares as part of their compensation package, are likely to have more diversified financial portfolios. Any shareholding in the company would represent a smaller fraction of their overall wealth, resulting in a different attitude and more risk tolerance when thinking about capex and R&D spending decisions.

Figure 5: Median dividend payout ratio for family companies within the CS Family 1000 by generation



Source Figures 4 and 5: Company data, Credit Suisse estimates

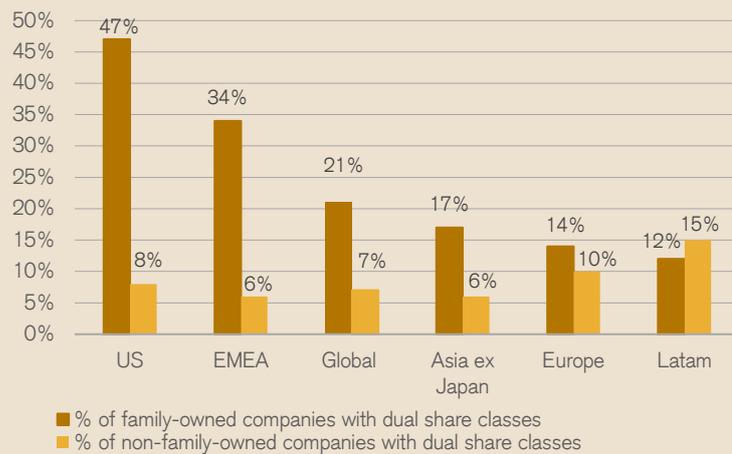
Dividend policy as a competing use of cash

It is often posited that business families can be highly dependent on the company's dividends as a major source of income. This may not be surprising when the family business represents a significant proportion of the family's wealth. Holt et al (2017) and Miller & LeBreton-Miller (2014) observe that, when the business ownership is widely dispersed across several family members (and potentially several generations), a firm may be subject to a diverse set of priorities, making it harder for the executive management to focus on the "simple" objective of growing the company. It is possible that family members with less emotional attachment to the business demand a higher dividend payout because they are less attached and prefer direct monetary rewards. Consequently, as suggested by Miller, Amore, Quarato, Corbetta (2022), a generous dividend policy may serve as a vehicle for maintaining family cohesion.

Our dataset largely supports this conclusion.

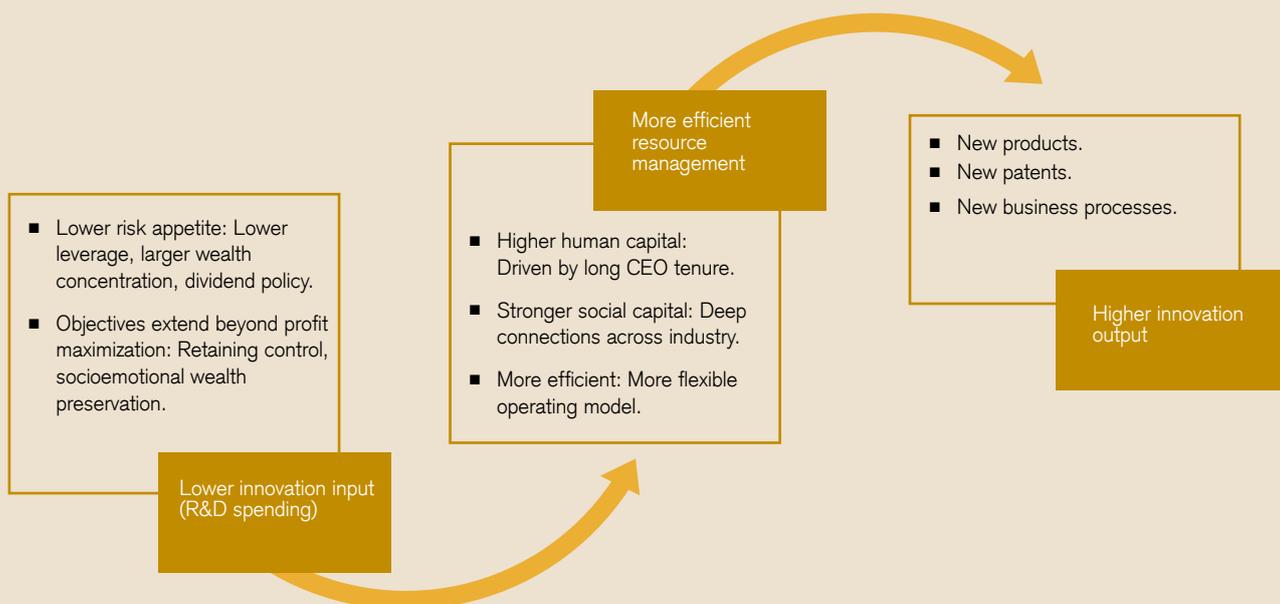
Figure 5 shows that, looking back at the last ten years, we observe that first- and second-generation family-owned companies have had lower dividend payout ratios (a median of 27% and 29%, respectively), compared to a higher propensity to pay dividends for companies in the fifth (and later) generations where the median dividend payout ratio was 34%.

Figure 6: CS Family 1000: Family-owned businesses are more likely to have dual-share classes than non-family-owned businesses



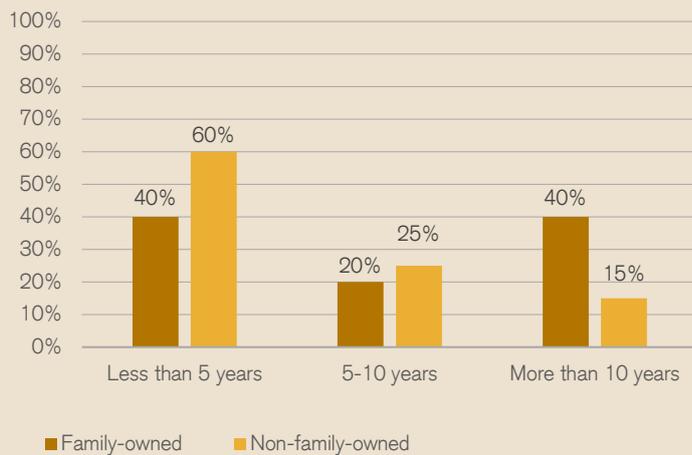
Source: Company data, Credit Suisse estimates

Figure 7: Apparent paradox for family-owned businesses – lower innovation input, higher innovation output



Source: Company data, Credit Suisse estimates, Zellweger (2017) "Managing the Family Business – Theory and Practice"

Figure 8: CS Family 1000 CEO tenure – CEOs at family companies are more than twice as likely to have a tenure over ten years



Source: Company data, Credit Suisse estimates, CS Family 1000 (based on the 20 largest companies by market cap.)

Socioemotional wealth preservation and family control

In addition to the profit-maximization objective, which determines most decisions for non-family-owned companies, family-owned companies may have additional goals. The latter are rarely formally articulated and likely to vary from family to family. The concept of socioemotional wealth preservation, including family-business owners who seek to retain control, addresses this.

Socioemotional wealth preservation

One consideration that applies only to family-owned businesses is that of socioemotional wealth (SEW). The concept was first discussed by Gomez Mejia et al. (2007) and they defined SEW as the non-financial aspects of a business that meet the family's affective needs, including identity, the ability to exercise family influence, and the perpetuation of the family dynasty. This concept has been further refined by several academics, including Berrone et al (2012), who posit that SEW has five dimensions: (1) family control and influence; (2) identification of family members with the firm; (3) binding social ties; (4) emotional attachment of family members; and (5) the renewal of family bonds to the firm through succession from within the family. In the quest to preserve SEW, business owner families seek to reinforce the family's association with the business as well as its association with philanthropic activities. This could in part explain the relatively higher contribution of the social component to the ESG score for family-owned businesses.

The objective of preserving SEW can have an impact on the strategic decisions made by family-owned businesses. Projects with a high expected return in the future, but which could pose a threat to the current SEW present a dilemma for family-owned companies, unlike non-family-owned companies, and they often opt in favor of the status quo, potentially resulting in a more risk-averse attitude toward new projects and R&D spending generally. By contrast, non-family businesses do not face this constraint.

Family businesses aim to retain control

The desire to retain family control among family-owned companies often stands at the core of the decision-making process and hence can influence the willingness to take risk. Any business decision that could dilute or threaten family control would likely be avoided. This consideration does not feature in the decision-making of non-family-owned businesses, where the aim is to maximize shareholder returns rather than just the family's. According to Cucculelli, Breton-Miller, and Miller (2016), family governance does inhibit the development of new product introductions. They find that this trend is more pronounced in successor generations.

A common mechanism through which owner families uphold influence and control is via the issuance of dual-class shares, which are equity shares with weighted voting rights providing some owners with voting rights that are disproportionately higher than the value of their equity shareholding. This can contribute to the poorer governance scores we see among ESG ratings.

Within the CS Family 1000 database, we find that family-owned businesses are three times more likely to have dual-class shares than non-family-owned businesses at a global level. Dual-class shares have a long history in developed markets and have traditionally been less prevalent in APAC. However this trend is changing. Since 2018, the Hong Kong Exchange and Singapore Exchange have amended their listing rules to allow IPOs of dual-class shares.

As shown in **Figure 6**, according to the CS Family 1000, 17% of family-owned companies have dual share classes in Asia ex. Japan, compared to 14% in developed Europe. Yet the USA stands out as the region where almost half of family-owned companies have issued dual-share classes, which could in part be thanks to legal structures that are more amenable to such an outcome. Latin America is an exception, where non-family-owned businesses have a slightly higher proportion of dual-class shares than is the case for family-owned businesses.

Family ownership drives higher innovation output despite lower R&D spending

According to several academic studies, despite spending less than non-family-owned businesses on R&D, there is evidence that family-owned businesses generate a higher conversion rate of innovation input into innovation output than non-family-owned companies.

Using empirical data spanning across 42 countries, Duran, Kammerlander, Van Essen, and Zellweger use R&D spending as a proxy for innovation input and to measure innovation output they consider measures including (1) the proportion of sales associated with the newly introduced product, (2) the number of patents that the firm has been granted and (3) the ratio of number of patents granted to a firm to the amount of R&D investment. Their study finds significant evidence that family-owned companies have a higher innovation conversion rate. Moreover, this effect is shown to be stronger for family-owned companies where the CEO is a later generation family member. Interestingly, the opposite was observed in instances where the CEO was also the founder of the company (first-generation family owner).



There is evidence that family-owned businesses generate a higher conversion rate of innovation inputs into innovation outcomes

Many reasons have been put forward to explain this apparent paradox. Zellweger (2017) argues that family-owned businesses have a higher stock of human and social capital, and that their business model is more efficient. We explore further insights from Professor Zellweger in Chapter 3.

Higher human capital as a result of longer employee tenure

Critics of the family-owned business model might argue that it allocates senior executive positions by birthright, rather than a competitive external recruiting process. In contrast to non-family-owned businesses, family-owned businesses tend to exhibit high levels of employee retention and long employee tenure, including within the senior executive team. Looking at the 20 largest companies in the CS Family 1000 (by market cap), we find that 40% of family-owned businesses have a CEO with a tenure exceeding ten years, compared to only 15% of non-family-owned businesses, as shown in **Figure 8**. Similarly, 40% of family-owned businesses have a CEO with a tenure shorter than five years, compared to 60% for non-family-owned businesses. This higher level of company-specific human capital enjoyed by family-owned businesses has the potential to create a higher rate of innovation. Internal collaboration is likely to be stronger and barriers lower when entering into projects.

Stronger social capital at family-owned businesses

Social capital stock includes intangible assets such as company and industry knowledge, and close relationships, which in turn generate other forms of capital. Social capital helps secure a framework with connections for advice and communication, which in turn feed into factors that help drive innovation. Knowledgeable network partners can help identify trends and provide valuable feedback throughout the development process. This support can help simplify and reduce development costs and accelerate the development cycle of a new idea, e.g. via referrals to suppliers or customers. These factors are largely unique to family businesses and non-existent at non-family-owned businesses, and can potentially explain why more innovation can be implemented with less financial capital (or R&D spending).

Family-owned businesses operate more efficiently

According to Carney, resource allocation in family-owned businesses allows for higher efficiency. As owner CEOs in family companies make decisions, they are likely to be driven by prudence and the desire to closely control the firm's deployment of resources. The resulting lower governance costs, which arise as a result of the family owners' ability to more closely monitor top managers, further enables the efficient use of resources for innovation.

Is R&D spending the right measure for innovation input?

A critical question is whether R&D spending is in fact the right metric to measure innovation. R&D spending is easily quantifiable and accessible, making it the metric of choice for analysts who wish to explore the topic. However, innovation goes further than R&D spending and occurs in three distinct stages: (1) idea generation, i.e. traditional R&D and product development or product enhancement; (2) incubation, i.e. the determination of whether a new idea will be commercially viable; and (3) scaling, i.e. the growth of the new venture.

If a company does not excel at all three stages of innovation, the final outcome is unlikely to be successful. For instance, if a firm generates new ideas, but is unable to select which are likely to be commercially successful, this would result in a lower innovation output to input ratio. It is possible that family-owned businesses can create a better incubating and scaling outcome by optimizing their human and social capital compared to non-family companies. This would be consistent with founder companies that have not yet accumulated enough social capital to influence the later stages of innovation exhibiting a higher propensity to spend on R&D (innovation input) for a relatively lower innovation output in return.

Conclusion

Family-owned businesses spend less than their non-family-owned counterparts on R&D. Several reasons have been put forward to explain this relatively conservative approach. First, family-owned businesses have a lower risk appetite due to a cautious capital structure, family wealth concentration in the company, and a more generous dividend policy than non-family businesses.

Second, family-owned companies have objectives that extend beyond profit maximization, e.g. retaining control as well as preserving socioemotional wealth. Despite this more frugal strategy toward innovation spending, several academic studies have found that family-owned companies generate a higher innovative output thanks to a higher level of company-specific human capital by virtue of longer employee tenures, stronger social capital as well as a more efficient operating model. These factors can contribute to enhancing the ability of family-owned companies to transform an innovative idea into a profitable proposition more effectively than non-family-owned companies. In the next chapter, we ask three CEOs to share their views on key questions facing listed family-owned companies, including how they think about and implement innovation projects.

Bibliography

- JW Atkinson: "Motivational determinants of risk-taking behavior," 1957 – *Psychological Review* 64.
- Cater III and Justis, "The development of successors from followers to leaders in small family firms: an exploratory study," 2009; Laffranchini and Braun, "Slack in family firms: evidence from Italy (2006 – 2010)," 2014.
- Carney, "Corporate Governance and competitive advantage in family-controlled firms", 2005, *Entrepreneurship Theory and Practice*.
- CFA Institute, "Dual-Class Shares: The Good, the Bad, and the Ugly," 2018.
- Chrisman & Patel, 2012, Variations in R&D investments of family and non-family firms: Behavioral agency and myopic loss aversion perspectives; *Academy of Management Journal*, 55.
- Gomez Meija, PC Patel and T Zellweger (2015), In the horns of the dilemma socioemotional wealth, financial wealth, and acquisitions in family firms. *Journal of Management*.
- Gomez Meija, Haynes, Nunez, Jacobson and Fuentes, "Socioemotional wealth and business risks in family-controlled firms: Evidence from Spanish olive oil mills," 2007; *Administrative Science Quarterly*, 52.
- Llach and Nordqvist, "Innovation in family and non-family businesses: a resource perspective," 2010; *Int. J. Entrepreneurial Venturing*, Vol. 2, Nos. 3/4, 2010.
- Martinez-Romero, Rojo-Ramirez, "SEW: Looking for a definition and controversial issues," 2016. *European Journal of Family Business*.
- Duran, Kammerlander, Van Essen, and Zellweger, "Doing more with less: Innovation Input and Output in Family Firms," 2016, *Academy of Management Journal*, 59.
- O'Reilly and Binns, "The three stages of disruptive innovation: idea generation, incubation and scaling," 2019, *California Management Review* 2019, Vol. 61(3).
- Zellweger, "Managing the family business – Theory and Practice", 2017 (Elgar).



Family values in practice and in theory

In this chapter, we delve into the factors that shape decision-making for the chief executive officers of owner/operator companies. The first part of the chapter combines the practical perspectives of three CEOs. We first met with Simon Michel, CEO of Ypsomed, and George Weston, CEO of Associated British Foods. Both reflect family control of their companies, although at different stages of the generational lifecycle. Our third CEO is Tony Smurfit from Smurfit Kappa. Here, while family ownership in shareholding terms does not match our definition of a family business in this report, the heritage of the founder remains front and center in the culture of the company. The second part of the chapter is an academic discussion with Professor Thomas Zellweger of the University of St. Gallen. In the interviews, we specifically focus on approaches to risk appetite, innovation, company culture, ESG and issues related to succession.

Interviews with CEOs Simon Michel, Tony Smurfit and George Weston

Family-owned companies tend to have a longer investment horizon. What is your typical time horizon and how does this shape your decision-making process?

We found the collective responses from our CEOs were framed around a long-term mindset and consistent with our own survey. According to Simon Michel, “We don’t think in quarters.” Ypsomed operates a five-year plan and this influences investment-making decisions. However, “as a company, we want to know now where we will be in five years, but equally want to know what lies beyond that.” According to

George Weston, most investments typically have longer payback periods, “the long term dominates the investment in food-manufacturing assets.” ABF is not driven by short-term performance and he would rather “sacrifice short-term returns in favor of a viable long-term project. A key question is whether businesses are capable of compounding growth over the long term.” He adds, “most of our shareholder value has been created by businesses ABF has owned for over 70 years.” For George Weston, identifying the next 70-year business is a key question. As much as for his own long-term focus, he also hopes that “employees can align their careers with the long-term ambitions of the business.” According to Tony Smurfit, “as a professional manager, you will sometimes have to sacrifice short-term returns for a long-term benefit. We definitely prioritize the long-term benefits of an investment project and its

Note: The individuals mentioned are not associated with/related to Credit Suisse and do not act for and on behalf of Credit Suisse.

sustainability credentials.” For the three CEOs, a disciplined approach to capital allocation was of key importance and this should be communicated clearly to financial markets, perhaps all the more so given any perceived family influences.

Our work suggests that family-owned companies on average tend to spend less on R&D compared to non-family-owned companies and that family-owned companies can be more risk-averse than non-family-owned companies. Would you say that your investment decisions relating to innovation tend to be more conservative?

In response to this question, our panel viewed innovation as critical for the company’s long-term prospects. However, it was clear that there was no appetite for R&D merely for the sake of it. A judicious approach was crucial. According to Simon Michel, “Ypsomed is at its core a very innovative company,” with a formally structured innovation process that permeates across the entire company. The approach is “fact-based,” taking into account the ultimate cost of scaling and bringing a product to market.

“
As a company, we want to know now where we will be in five years and beyond
– Simon Michel

More generally, Ypsomed encourages employees at every corporate level to engage in innovation challenges and find new ideas. The company collaborates with schools and universities, establishing “innovation hubs” and is continually “scouting” for new technological developments. The ultimate goal is to “capture new technology as early as possible,” even though there may not be any immediate investment plans. Arguably, a long-term perspective does afford family-owned businesses more latitude in this respect, in his view.



Simon Michel, CEO of Ypsomed

Simon Michel has been CEO of the Ypsomed Group since 2014. He studied economics at the University of St. Gallen and, from 2003 to 2006, he worked at telco provider Orange. He is a member of the Board of Directors at the textile company, Forster Rohner AG, sitem-insel AG, Unitectra AG, Unitectra AG and DCB Research AG. He is a member of the board of the Swiss Medtech association and was elected to the Cantonal Council of the Canton of Solothurn in 2017 for the Liberal party.

The company was founded in 1984, originally the first provider of micro insulin pumps in the market. The co-founders later sold Disetronic with its infusion business, and kept the injection business, which is now known as Ypsomed. Ypsomed employs around 2,000 people and generates USD 510 million in revenue. The stock has a market capitalization of USD 2.5 billion.

According to Tony Smurfit, “innovation that gets results is in our DNA.” Smurfit Kappa’s approach to innovation for business success is based on combining science, experience, big data and creativity on a scale and with a depth seldom seen in the industry. The company develops unique scientific insights in four R&D facilities in different regions. These high-end facilities are supported by local laboratories that scale technical insights across all facilities. The nature of the industry is at the center of the circular economy with innovation aligned as a consequence.

George Weston notes that aspects of ABF do not by their nature always require heavy R&D expenditure per se. However, innovation is still highly important, though within a focused framework: “we take innovation very seriously, but don’t want to over-capitalize.” The bottom line is that “investment decisions are dictated by a strong focus on cash generation” rather than high-profile



Tony Smurfit, CEO of Smurfit Kappa Group

Tony Smurfit has worked in various parts of the Smurfit Kappa Group, both in Europe and the United States since he joined the Group. He was appointed Group Chief Executive Officer in September 2015, prior to which he was the Group Chief Operations Officer from November 2002 onward. He was also Chief Executive of Smurfit Europe from October 1999 to 2002, prior to which he was Deputy Chief Executive Officer of Smurfit Europe and Chief Executive Officer of Smurfit France.

The company was founded in 1934, and later acquired by Jefferson Smurfit in 1938. It now manufactures, distributes and sells containerboard, corrugated containers and other paper-based packaging products, such as solid board and chipboard. Smurfit Kappa operates in 36 countries and employs 48,000 people. The company has USD 13 billion of revenue and a market capitalization of USD 9.7 billion.

projects, which may not be value-creative. He adds there is no desire to invest in “vanity projects.” Similarly, Tony Smurfit agrees there is no desire to invest at any cost, but rather “when it is the right thing to do.” In some instances, he notes that family influences in their companies can at times lead to distortions in decision-making.

As for risk taking, Simon Michel reflects, where spending decisions are concerned, “a CEO’s risk attitude can be dependent on personality traits” irrespective of whether that person is a family member or not. He adds that risk attitude is also shaped by a company’s lifecycle, whereby “a first entrant, notably a first-generation entrepreneur, would be willing to take more risk in order to gain market share (from zero).” Subsequent generations may be more conservative when considering investment projects. According to

George Weston, “some conservatism can stem from a personal desire as well as an obligation towards family members” whose wealth is often concentrated in the company’s ownership in the case of many family-owned companies (this resonates well with our own work in Chapters 1 and 2 of the report). There is also a duty of care and strong commitment toward the family’s social endeavors, which can influence risk tolerance.



An entrepreneurial spirit is promoted at all levels, ensuring a strong sense of belonging by all employees – Tony Smurfit

How do you sustain the sense of company “heritage,” despite corporate changes over time? Does the heritage still feed through to business strategy and lead to differentiated decision-making?

In answer to this question, our three CEOs expressed a clear desire to build a strong, long-lasting culture within their companies or a “culture of belonging” as Tony Smurfit described it. Longevity of staff tenure across the organization and leadership teams was a common thread and an explicit priority. According to George Weston, “the longer tenure of key executives allows for increased integration and for the fostering of company culture,” and “longevity of key executives helps to weave in the fabric of the company across different businesses and regions.” This aspect comes into sharper focus as the company expands into new markets and new regions, notably via acquisitions.

A focus on an “entrepreneurial model” across the business was a consistent theme of our discussions. Divisions of owner-operated businesses were structured and empowered with this very much in mind. Tony Smurfit emphasized

that, at Smurfit Kappa, “an entrepreneurial spirit is promoted at all levels, ensuring a strong sense of belonging by all employees” who have the freedom to develop and grow. Preserving this culture was a key consideration during unsolicited takeover proposals from International Paper, where what was deemed to be offered was not in keeping with the culture and ultimate potential of the business in his view. More generally, he said the most important aspect of culture is the ability to adapt to new situations and be flexible. Simon Michel agrees: “in this day and age, adaptability and speed are key.” Employees at Ypsomed are encouraged to “bring their entire selves to work...they are empowered in their functional responsibility, though also expected to exercise broader ethical judgement.”

“ The longer tenure of key executives allows for increased integration and for the fostering of company culture – George Weston

How important are ESG considerations at your respective companies?

Environmental, social, governance (ESG) is embraced by all three companies interviewed, with a heightened awareness of the importance of engaging the ESG community.

Environment: Simon Michel agrees that sustainability is a key company focus, with an explicit recognition of the role mankind has played in climate change. With the appointment of a sustainability leader, Ypsomed has re-examined the company’s corporate pillars from scratch and conducted a detailed materiality analysis to explicitly align them to the UN SDGs. The core focus for Ypsomed at the moment is becoming carbon neutral: “we have invested heavily in various sustainable projects, including the recycling of our used medical devices to re-create new ones.” At Smurfit Kappa, the circular economy is at the core of business. The company uses renewable, recyclable, recycled and biodegradable materials for packaging



George Weston, CEO of Associated British Foods

George Weston is CEO of Associated British Foods plc (ABF), a highly diversified group with a range of food and ingredients businesses as well as its retail brand, Primark. George Weston has led the Group since 2005. He started his career in 1986 as a research analyst at LEK Partnership, before first joining the ABF Group in 1998. He became Chief Executive of Allied Bakeries in 1999, a role he held for four years. In 2003, George moved to Australia to lead George Weston Foods, one of the largest food manufacturers in Australia and New Zealand, and part of the ABF Group, a role he held for two years before returning to the UK to become CEO.

ABF was founded in 1935 by Garfield Weston, having initially invested in national and regional bakery companies. The company is now engaged in the processing and manufacture of food worldwide, and textile retailing. ABF operates in 53 countries and employs 132,000 people. It generates revenue of USD 21 billion and has a market capitalization of USD 16.2 billion.

solutions. According to Tony Smurfit, the company “aims to create sustainable value for our customers, investors, employees, suppliers and communities in which we are privileged to operate.”

Social: Earlier in this report, we found very high scores from the ESG rating agencies for European family businesses as to their social credentials. In line with this observation, our panel of CEOs placed considerable value on the commitment to social causes and to any positive contributions that employees can make in society. Ypsomed sees an obligation to proactively engage in community issues. At Smurfit Kappa, this is mainly done through a

foundation run by former executives of the company who perform charitable actions in the company's name – be it from a local, national or international perspective. Tony Smurfit adds that “contributing to the wider society makes employees proud to work at Smurfit Kappa.” It is a further element of staff longevity at Smurfit Kappa. Simon Michel agreed that “family ownership can provide security in uncertain times.” We were struck by how these companies provided generous packages to their employees during the COVID pandemic.

Corporate governance: The three CEOs were aware of the at times skeptical view that investors can adopt toward family-owned companies in terms of corporate governance and all seek to implement best practice where corporate governance is concerned and ensure that minority investors know this. By definition, family ownership means that a large shareholder is in charge of making business decisions on behalf of minority shareholders. The best way to relieve any such concerns is through complete transparency and communication. In establishing clear transparency, Simon Michel notes that Ypsomed's current board of directors is markedly different to when the company was founded.

“

I don't believe in a dynasty – it is a construct that no longer fits with a company for modern times – Simon Michel

According to George Weston, to counter any skepticism, “the key is a formalized capital allocation model with clearly articulated targets.” He adds that ABF “aims to always ensure transparency and communication with investors, and minimize potential perceived conflicts of interest.” Here we note that ABF has a unique ownership structure given the charitable foundation within which the principle shareholding rests. As George Weston says, “we are not a cause-related company and our focus

is financial success. However, we have a strong desire to act in accordance with the values of our charitable foundation.” The Garfield Weston Foundation is one of the UK's leading grant-making charitable institutions and is mainly funded by dividends from ABF. Hence the returns generated by the company not only matter to shareholders, but also to many charities. When asked whether the role of the family or foundation and associated business strategies was ever a source of tension with investors, George Weston replied “tension occurs when we are not performing!”

A CEO from the founding family who retains a significant stake conveys longevity and long-term, multi-generational commitment to value creation. Is it important that a family member is the CEO and that the next CEO is a family member?

The unanimous view was that the most important aspect of this question comes down to who is the best fit for the company, irrespective of whether the person is a family member or not, although making sure that the continuity of the corporate culture was a clear priority for the future leader of the business.

George Weston said “there is no expectation that the next generation of the family should come in.” He noted that, while an external CEO could be more skilled if he comes from a bigger talent pool, someone from the family could adapt to the company culture faster. Simon Michel's reiterated this line of thinking, saying “I don't believe in a dynasty – it is a construct that no longer fits with a company for modern times.” He notes that the appointment of a family member at the helm of the company can be an emotional decision for all concerned and may not always be optimal when one has to balance the company's future wellbeing and shareholder interests with family relationships outside the boardroom. For Tony Smurfit, succession through the family is not a prospect and the company is of course not family-owned. However, it is essential that “the future leader of Smurfit should be someone who can nurture the culture and heritage of the company.” He added that the company is constantly investing significant resources to cultivate the next breed of leaders.

In our interview with Professor Zellweger, we address the topic of succession in more detail.

Interview with Professor Thomas Zellweger from the University of St. Gallen

Thomas, does the capital structure for family-owned businesses differ to that of non-family-owned businesses, and does this have any impact on relative business performance?

Thomas Zellweger: In most family-owned businesses, the family intends to keep control of the business for the long term and pass on control to future generations. This inevitably influences the choice of capital structure for these businesses compared to non-family-owned businesses, which are not subject to such control retention and inter-generational succession constraints when making decisions pertaining to business financing. Private equity or public equity funding, while sometimes an attractive source of funds, is dilutive to existing shareholders. These funding options are therefore generally less popular among family-owned businesses. Earlier-generation companies may prefer debt funding as a result, while later-generation companies may prefer to fund business growth out of retained earnings. While some family-owned businesses eventually decide to go for an equity market listing, this will only occur when they are confident that the family will manage to retain control. One mechanism that helps achieve this is the issuance of dual classes of shares, or the bundling of entities through the use of special purpose vehicles. These trends are more common in the US than in the UK, for instance, as there is more leeway for incumbent shareholders to retain control.

Family businesses are sometimes said to be more innovative than their non-family counterparts. What metrics do you think best confirm or dispute this idea? Would you say that the level of R&D spending is an appropriate indicator?

There is a range of academic studies that support the idea that family-owned businesses invest less in R&D than non-family-owned firms. One ought to interpret this carefully. This is not to say that family-owned businesses are less innovative than non-family-owned firms. R&D spending is only one indicator that can help us gauge the level of innovation undertaken by a business. It does not quantify the output that results from decisions to innovate. A more plausible way to view this is to consider the conversion of R&D spending into new products, measuring the success of new products (innovation output) relative to R&D spending (innovation input). Possible measures include



Professor Thomas Zellweger

Thomas Zellweger is a Professor of Management at the University of St. Gallen, Switzerland, where he is Vice-President for Faculty & Research, Director of the Swiss Institute of Small Business and Entrepreneurship, and the Center for Family Business. His research focuses on the governance and strategic management of private firms, in particular family firms, as well as entrepreneurship. He has received several international awards and his research has been published in leading management journals such as *Academy of Management Review*, *Academy of Management Journal*, *Organization Science* and *Strategic Management Journal*, among other outlets. His work has been discussed in international media such as *The Economist*, *Forbes* and the *New York Times*. His international textbook entitled "Managing the Family Business: Theory and Practice" received the best book of the year award from the European Academy of Management in 2018.

levels of new products, sales of new products and patents. Several academic papers suggest that family-owned businesses are more effective and especially more efficient innovators than non-family businesses.

Where does the topic of "ESG" fit in the investment proposition for family businesses?

Generally, there are two views on the topic of family businesses and ESG. First, the positive view, which is that family businesses have a long-term perspective and are consequently more conscious of their public perception. This could result in a more focused approach by family-owned companies to engage in corporate social responsibility. The contrasting view is that family businesses might have a sharper focus on profitability and that an ESG strategy may

distract them from their profitability objectives. Family-owned companies can be perceived to be more focused on safeguarding their family's controlling stake and hence are less inclined to act in favor of minority shareholders. This relatively uneven governance structure contributes negatively to ESG outcomes. However, it is important to note that traditional ESG scores may be too narrow in order to fully capture all these aspects. It is worth acknowledging the role that cultural factors play in how family businesses value ESG considerations across regions, particularly given differences when it comes to environmental and social laws.

Naturally, succession planning can be an emotional matter as family dynamics play an important role in the process. One must also note there is a significant cultural aspect to succession planning and we can observe that best practices can differ quite widely across regions. Most importantly, gradual transitions that occur in phases, with the departing CEO still on the board in an advisory capacity, for example, or with the successor serving on the executive board for a few years before the actual transfer of power and ultimately ownership, may be more successful. Rapid transitions rarely result in a superior outcome for business performance in family firms. So it pays off for succession planning to be a long-term planned endeavor.

“

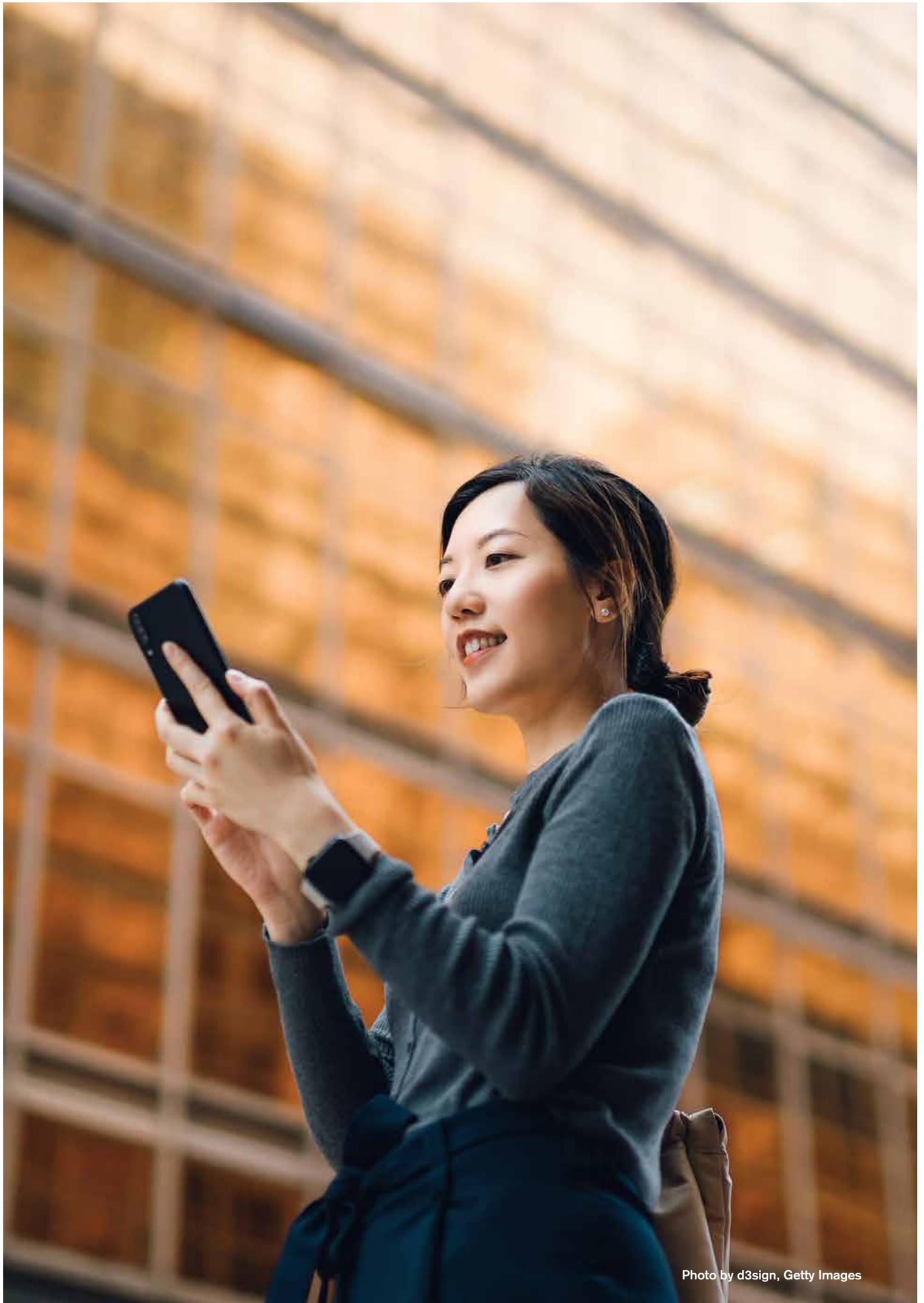
Several academic papers suggest that family-owned businesses are more effective and especially more efficient innovators than non-family businesses

“

It pays off for succession planning to be a long-term, planned endeavor

An important consideration for investors who think about family businesses revolves around succession planning. What are your thoughts on this topic?

Succession planning is a key topic in the management of family-controlled businesses. There are several schools of thought on this subject and a variety of factors come into play. For instance, families need to think about the legal implications of passing down the shares from one generation to another.



The emerging founder landscape

The Family 1000 focuses on listed corporates where the role of the founder, or his or her heritage, is still central to the operation of the company. This is a dynamic picture, of course, with new companies constantly being founded and ultimately finding their way into the listed space. In this section, we throw a spotlight on such emerging founder businesses by looking into the private space. We document the top 100 “unicorns” globally and their role in the corporate landscape. These may be future first-generation members of the Family 1000 if they ultimately transition into the listed space. We examine the drivers shaping the nature of the businesses emerging.

Emerging founders

To explore new emerging businesses and their respective business models, we have focused here on the universe of companies termed as “unicorns.” These are defined as private companies with an implicit valuation of USD 1 billion or more on the basis of their most recent external funding transaction. They are naturally not the only examples of founder businesses that are on the rise, as many exist below the USD 1 billion “threshold” or have not sought recent external funding that would include them in this bracket. Many new businesses, particularly those that are family-owned, are not reliant on venture capital or broader external funding, nor wish to be. However, Unicorns are a meaningful defined cohort of new businesses to analyze. We would also note that Credit Suisse has published a substantial body of work analyzing the topic through a series of unicorn reports published globally, including China, India and EMEA. Here we draw off some of the findings of this prior research.

At the end of this chapter, we detail the top 100 unicorns – representing only a top slice of the over 1,200 globally – as estimated by market research and analysis company CB Insights. We provide a very basic business description, implicit valuation on the basis of their latest funding and the region where they are located. More detail on the specific companies can be found in the regional reports Credit Suisse has published.

We would stress that valuation estimates come with a number of caveats, given limited transparency and disclosure, and are in no respects our own opinion. Implied valuations have typically been reported at the time of the latest funding rounds or transactions among existing shareholders, many of which took place amid far more accommodating capital markets than currently prevail. We have, of course, seen significant downward adjustment to implicit prior valuations as companies have accessed new external capital. The current challenging conditions in financing markets only serve to underline this point.

The global unicorn landscape

Figure 1 illustrates the rapid rise of the number of unicorns globally up to the end of 2022. They have risen five-fold since 2017. As well as the number of unicorns, **Figure 2** charts the cumulative valuation of new unicorn companies, which has risen from a global total of USD 112 billion in 2016 to USD 556.7 billion in 2022. Clearly, 2022 valuations have reflected a very sharp and downward re-appraisal for many of these companies compared to the heady valuations attached in 2021 – a trend mirrored in the valuations of technology companies in the listed space throughout 2022. Aggregate valuations of the space are still above 2020 levels.

“
2022 valuations have reflected a very sharp and downward re-appraisal for many of these companies

These trends in valuation mirror the supply of external funding, specifically private equity, which rose dramatically in 2021 before encountering a severe setback in 2022 amid a world of higher interest rates and diminished risk appetite (**Figure 2**). Funding in the majority of cases was supplied at significantly lower valuations and reflected in **Figure 3** with a natural circularity. However, despite the 2022 decline, private equity funding ended 2022 above pre-COVID levels. In 2022, there were over 36,000 transactions and a total funding of USD 415 billion. While the current stresses in financial markets are only likely to maintain downward pressure on the trends visible in **Figures 2 and 3**, we would equally note that funding is still forthcoming, witnessed in the record fundraising by Stripe in March, if at a significantly lower valuation.

Figure 1: Total number of unicorns globally over time

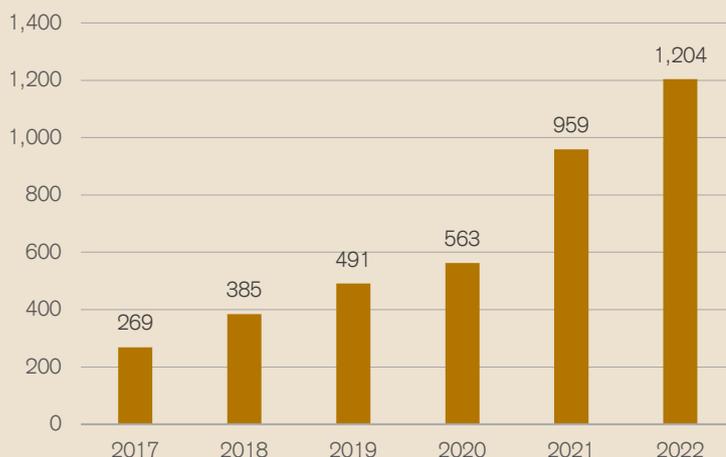


Figure 2: Cumulative valuation of new unicorns over time

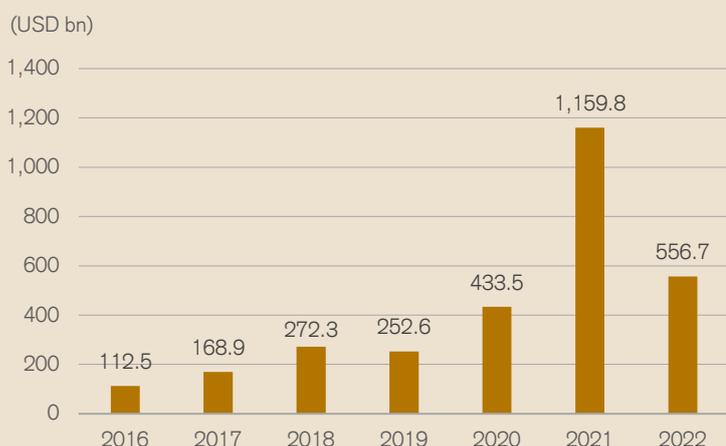


Figure 3: Global unicorn funding over time



Source Figures 1–3: CB Insights

Figure 4: Total number of unicorns and aggregate valuation by country



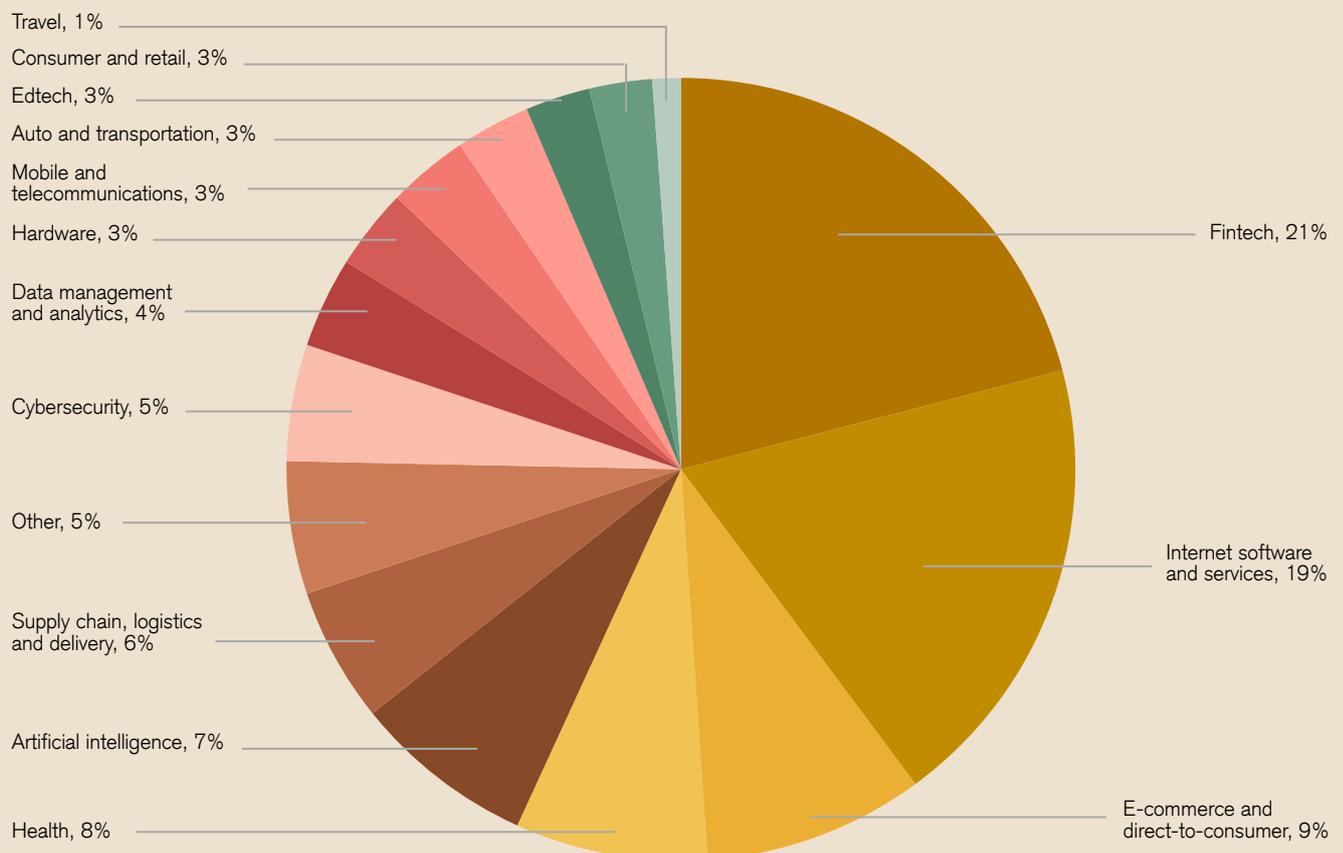
Source: CB Insights, based on the total number of unicorns as at 31/12/2022

Regional and industry mix of new “start-ups”

The geographical distribution of unicorns is heavily USA-skewed (**Figure 4**). The USA is home to more than half of the world’s unicorns and secured over half of total global funding in 2022 (USD 198.4 billion). Next come China and Europe, both encompassing almost 15% of the total unicorn population. We note that Europe, while lagging behind the USA and China, has been a region of rapid growth, notwithstanding the setback in 2022. The number of European unicorns is still 50% higher than in December 2021 and, even considering last year’s decline in risk appetite, experienced the lowest drop in funding, with a 17% decline year on year. In contrast, we saw the number halve in China.

Figures 5 and 6 look at the unicorn landscape through an industry lens. To be fair, the niche business models of many of these start-up businesses make it hard to allocate them to a broad sector. However, using the definitions provided by CB Insights, as at end-2022, 21% of the world’s unicorns were categorized as fintech, companies with a cumulative valuation of USD

Figure 5: Number of global unicorns as of December 2022, by sector



Source: CB Insights, based on total number of unicorns as at 31/12/2022

Figure 6: The global unicorn “ecosystem”



Source: CB Insights, based on total number of unicorns as at 31/12/2022

879 billion. This represents 21% of the entire universe at that date. The Internet and Software sector follows on from this, with the total cumulative valuation of unicorns in this sector amounting to USD 660 billion, 17% of the total valuation of our universe. The sub-sectors of Artificial Intelligence and E-commerce follow thereafter.

The unicorn “ecosystem”

Figure 5 takes things down to the company level as we lay out the top 100 global unicorns. However, rather than just view the universe of unicorn companies based on random entrepreneurial activity, we see an inherent interlinking of the companies emerging and in many respects shaped by powerful structural drivers.

At a very high level, we see a core group of companies across the unicorn landscape that we would deem to be “enablers” – i.e. emerging technology companies fostering the development of the new economy – and clusters of “disruptors” that then use this

technology to disrupt the old-economy incumbents. Together, they are creating new markets and sources of economic growth and innovation. However, through their disruptive potential, they are in many cases also redrawing the consumption map for goods and services and redistributing economic rents.

The schematic we have created in **Figure 6** is designed to convey this point. It draws off the range of common subsectors we have identified from where the unicorns largely reside based on both our top 100 list and our wider research.

At the core of this ecosystem, we typically find software-focused technology companies, characterized by their leverage and development of cloud technologies, artificial intelligence (AI), payment systems and the use of blockchain technology. Radiating outward are the specific sectors and end markets that these enablers are fostering in the goods and predominantly services sectors. They contain many of the classic disruptors. Their business models are to a large extent predicated on the existence of the emerging technology infrastructure at the core.

We have layered them in terms of broad groupings and then more tightly defined sub-sectors at the periphery, reflecting the nature of the companies at a more granular level.

Moving clockwise, the summary groupings we have isolated are consumer goods, consumer services, health and wellbeing, industrial services and fintech.

Table 1 overleaf shows a short list of illustrative enablers and disruptors to provide added color.

Looking ahead...decarbonization shaping the founder landscape

This is of course a very simplistic and static depiction of a landscape that is constantly evolving and changing. We have seen how rapidly new end markets and sources of disruption can develop and equally disappear, not least as the funding climate changes.

While we have focused on the role new technologies have played in shaping new business formation in something of an organic manner, strategic macroeconomic and policy factors – top down drivers – also come into play and create and stimulate the growth of new end-markets and related start-ups. The global focus on “decarbonization” is a common thread here. Its impact is visible across the existing unicorn landscape but will only grow in importance looking forward.

The USA's Inflation Reduction Act (IRA) and its accompanying subsidies are incentivizing entrepreneurial activity, with Europe now trying to keep pace with the development of its Green Deal Industrial Plan. China's targeted focus on the new energy vehicle (NEV) industry, alongside its broader imperative of technological and industrial self-reliance, has helped shape the nature of new companies emerging and will continue doing so.

To the extent to which top-down policies focused on the path to net zero reflect themselves in new areas of entrepreneurial activity, it would echo the remarks of Larry Fink, CEO of the investment company BlackRock, who, in his 2022 annual letter to CEOs, commented that the next 1,000 unicorns “won't be search engines or social media companies. Many of them will be sustainable, scalable innovators – startups that help the world decarbonize and make the energy transition affordable for all consumers.” He reiterated this message in his 2023 letter.

The mix of the present and future companies and their technology focus is of course very different to many in the broader Family 1000. As we have seen, many of our constituents have been formed through generations and carry a considerable legacy with them. Not all unicorns go through the IPO exit route; the majority are typically acquired. However, those that do will significantly change the mix and the business models of family businesses we see in the future.

Table 1: Enablers and disruptors in the global unicorn landscape – an illustrative sampling

Unicorn	Sector	Region	Valuation (USD bn)	Total funding to Q4 2022 (USD m)
Selected enablers				
Stripe	Fintech	United States	63	6,800
Checkout.com	Fintech	United Kingdom	40	1,800
Bitmain Technologies	Fintech	China	12	764
Rippling	Software and services	United States	11	697
Personio	Software and services	Germany	8.5	724
Selected disruptors				
SHEIN	Consumer goods	China	100	2,100
Instacart	Supply chain logistics	USA	10	2,900
Revolut	Fintech	UK	33	1,700
BYJU's	Education	India	22	5,800
Bolt	Mobility	Estonia	8.4	2,000

Source: CB Insights, Crunchbase, Credit Suisse Research

Table 2: Top 100 unicorns globally as at December 2022

	Name	Classification	Valuation (USD bn)	Market	Business description
1	ByteDance	Digital media	140	China	The operator of China's largest news aggregator and multiple hit video apps.
2	SpaceX	Aerospace	127	United States	An aerospace company that designs, manufactures and launches advanced rockets and spacecraft.
3	SHEIN	Consumer goods	100	China	An international B2C fast-fashion e-commerce platform.
4	Stripe	FinTech	63	United States	A suite of APIs powering online payment processing and commerce solutions for businesses.
5	Canva	Consumer goods	40	Australia	An online design and publishing tool.
6	Checkout.com	Fintech	40	United Kingdom	A payment-services provider enabling gateway, "full-stack" processing and risk services.
7	Revolut	Fintech	33	United Kingdom	A neobank offering a personal money cloud, cutting hidden banking fees to zero.
8	Epic Games	Digital media	31.5	United States	A video game and software company that creates games and offers its game engine technology to other developers.
9	Databricks	AI	31	United States	A platform combining data warehouses and data lakes for data and AI.
10	Fanatics	Consumer goods	31	United States	An online manufacturer and retailer of licensed sportswear, sports collectibles, NFTs, trading cards, and sports merchandise, as well as sports betting and iGaming.
11	Chime	Fintech	25	United States	A financial technology company providing fee-free mobile banking services with an accessible online banking system.
12	BYJU'S	Education	22	India	An education company that owns and operates an online learning application.
13	OpenAI	AI	20	United States	An organization that conducts research and implements machine learning.
14	Xiaohongshu	Consumer goods	20	China	A social e-commerce app helping urban females discover, share and buy overseas.
15	J&T Express	Supply chain logistics	20	Indonesia	A freight-service company engaged in logistics and package delivery.
16	Miro	Software and services	17.5	United States	An online collaborative whiteboard platform that helps teams work effectively.
17	Yuanfudao	Education	15.5	China	An online tutoring company providing live small class tutoring for all school subjects of K12 education.
18	DJI Innovations	Hardware/semi	15	China	A global leader in civilian drones and aerial imaging technology.
19	Discord	Digital media	15	United States	A VoIP and instant messaging social platform where users can communicate through various channels.
20	goPuff	Foodtech	15	United States	A delivery service for a range of items such as food, home essentials, snacks and alcohol.
21	Yuanqi Senlin	Consumer goods	15	China	A beverage company famous for producing sugar-free, low-calorie drinks.
22	Ripple	Fintech	15	United States	A global payments network that helps facilitate international payments, including transactions through a cryptocurrency.
23	Blockchain.com	Fintech	14	United Kingdom	A software platform for digital assets and a bitcoin wallet provider.
24	Plaid	Fintech	13.5	United States	A financial services company that helps companies build fintech solutions by facilitating communication between financial services apps and users' banks and credit card providers.
25	OpenSea	Digital media	13.3	United States	A web3 marketplace for NFTs and crypto collectibles.
26	Celonis	Software and services	13	Germany	A global provider of execution management and business process intelligence software.
27	Grammarly	Consumer Services	13	United States	A free writing app that helps make users online writing clear.
28	Devoted Health	Health and wellbeing	12.6	United States	A healthcare company providing trained and vetted personnel for the care industry, as well providing care services to individuals in their homes.
29	Faire	Marketplaces	12.59	United States	An online wholesale marketplace that contains over two million independent retailers in North America and Europe.
30	Brex	Fintech	12.3	United States	A financial service and technology company offering credit cards and cash management solutions for customers to save and spend money.

Table 2 continued: Top 100 unicorns globally

	Name	Classification	Valuation (USD bn)	Market	Business description
31	JUUL Labs	Consumer goods	12	United States	An electronic cigarette company offering products such as electronic cigarettes, device kits, pods and accessories.
32	Bitmain Technologies	Fintech	12	China	A start-up focusing on areas including GPU chip and cloud computing.
33	Biosplice Therapeutics	Health and wellbeing	12	United States	A biopharmaceutical company that focuses on potential treatments for several diseases.
34	GoodLeap	Fintech	12	United States	A finance technology company that provides financing options for the residential solar energy industry.
35	Xingsheng Selected	Consumer goods	12	China	A franchise model for community supermarkets and convenience stores with a new demand-driven model.
36	Deel	Fintech	12	United States	An all-in-one human resources platform for global teams, providing hiring and payments services for companies.
37	Airtable	Software and services	11.7	United States	A cloud-based software company that offers an online platform for creating and sharing relational databases.
38	ZongMu Technology Auto		11.4	China	An autonomous-driving and advanced driving assistant system developer.
39	Rippling	Software and services	11.25	United States	A human resources software solutions provider to help manage employee payrolls, benefits, expenses, devices and apps.
40	Global Switch	Telecoms and infrastructure	11.1	United Kingdom	A global data center provider for consolidated entities centrally located in Tier 1 cities across Europe and Asia-Pacific.
41	Bolt	Fintech	11	United States	A fintech company providing merchants with software to facilitate one-click online checkouts.
42	Swiggy	Foodtech	10.7	India	An India-based provider of online food ordering and delivery solutions from near-by restaurants.
43	Alchemy	Fintech	10.2	United States	A web3 developer platform that helps companies to build reliable decentralized applications.
44	Instacart	Foodtech	10	United States	A food delivery company offering more than 900 retailers and trusted local grocers.
45	Lalamove	Supply chain logistics	10	Hong Kong	A same-day delivery and courier service provider, and van hire platform in Hong Kong SAR.
46	Wiz	Software and services	10	Israel	A cybersecurity company that allows companies to find security issues in public cloud infrastructure.
47	Gusto	Fintech	10	United States	A company that provides cloud-based payroll, benefits and human resource management software for businesses.
48	Chehaoduo	Marketplaces	10	China	A used-car transaction platform operating through a C2C (consumer to consumer) model.
49	reddit	Digital media	10	United States	A social media website helping users to form online communities.
50	Talkdesk	Software and services	10	United States	A global cloud contact center that helps businesses improve customer relations and reduce customer support costs.
51	Notion Labs	Software and services	10	United States	An all-in-one workspace for teams and individuals, blending everyday work apps.
52	Thrasio	Consumer goods	10	United States	A consumer goods company enabling accessibility to products globally, using rankings, ratings and reviews to identify and acquire quality brands.
53	Digital Currency Group	Fintech	10	United States	A corporate venture capital company helping build and support bitcoin and blockchain companies via networks and access to capital.
54	KuCoin	Fintech	10	Seychelles	A global cryptocurrency exchange offering digital assets and providing crypto services to users.
55	ServiceTitan	Software and services	9.5	United States	A software system built for home and commercial contractors to help project management.
56	HEYTEA	Retail/consumer	9.28	China	A tea drink chain from China focusing on freshly made tea and fruit teas.
57	N26	Fintech	9.23	Germany	A mobile banking platform without a branch network that provides customers with financial service solutions.
58	Klaviyo	Software and services	9.2	United States	A marketing automation platform that automates SMS and email marketing to help businesses manage and grow customers.
59	Navan	Software and services	9.2	United States	A software company providing online travel management, corporate card and expense management.
60	Northvolt	Chemicals	9.08	Sweden	A Swedish manufacturer of battery cells and systems.

Table 2 continued: Top 100 unicorns globally

	Name	Classification	Valuation (USD bn)	Market	Business description
61	Tanium	Software and services	9	United States	A cybersecurity and systems management company.
62	Niantic	Digital media	9	United States	A software company that helps build augmented reality platforms with mapping and security for current and future generations of augmented reality hardware.
63	OYO Rooms	Discretionary	9	India	An online hotel booking platform offering leased and franchised hotels, homes and living spaces.
64	Getir	Foodtech	8.8	Turkey	A technology company that provides on-demand delivery services.
65	Rapyd	Fintech	8.75	United Kingdom	A payments platform providing a range of financial services such as payments, mobile wallets, money transfers, card issuing and fraud protection.
66	Kavak	Marketplaces	8.7	Mexico	An online platform that offers insight into buying and selling used cars.
67	Nuro	Mobility	8.6	United States	A robotics company that develops autonomous delivery vehicles.
68	Chainalysis	Fintech	8.6	United States	A blockchain data and software service provider supplying data and analysis to governments, banks and businesses worldwide.
69	Pony.ai	AI	8.5	United States	A vehicle technology company offering autonomous driving and mobility technologies and services across the USA and China.
70	Personio	Software and services	8.5	Germany	An online human resources management and recruiting platform for small and mid-size companies.
71	SumUp	Fintech	8.5	United Kingdom	A payment processor and point-of-sale software company providing a secure and cost-effective way for businesses to accept card payments in-store or online.
72	Anduril	AI	8.48	United States	A defense product company that builds technology for military agencies and border surveillance.
73	Bolt	Mobility	11	Estonia	A transportation platform providing vehicles for hire, micromobility, car-sharing, and food delivery services.
74	Lacework	Software and services	8.3	United States	A data-driven security platform for the cloud offering automated intrusion detection and threat defense.
75	Tipalti	Fintech	8.3	United States	A global payables automation platform that provides a cloud solution to scale and automate global payables operations.
76	Tempus	Health & wellbeing	8.1	United States	A technology company which advances precision medicine using AI in healthcare.
77	Ramp	Fintech	8.1	United States	A finance automation platform to help businesses improve efficiency.
78	Dream11	Gaming	8	India	An online gaming portal offering fantasy sports such as fantasy football, fantasy cricket, fantasy kabaddi and other games of skill.
79	Fireblocks	Fintech	8	United States	A digital asset custody, transfer and settlement platform for moving, storing and issuing digital assets.
80	Flexport	Supply chain logistics	8	United States	A freight forwarder and logistics platform offering supply chain and logistics solutions to facilitate global trade.
81	FalconX	Fintech	8	United States	A cryptocurrency brokerage and digital asset trading platform, specializing in blockchain, cryptocurrency and financial technology.
82	Caris	Health & wellbeing	7.83	United States	A molecular science company developing and delivering technologies for precision oncology.
83	Hopin	Digital media	7.75	United Kingdom	A virtual events platform that provides attendees with the ability to connect, learn and interact with others.
84	Dapper Labs	Software and services	7.6	Canada	A software-development company focused on building blockchain-based games and digital collectibles.
85	Netskope	Software and services	7.5	United States	A global cybersecurity company helping to provide threat protection when accessing cloud services, websites and apps.
86	Razorpay	Financials	7.5	India	A payment gateway in India that allows businesses of all sizes to accept, process and disburse payments.
87	Automattic	Software and services	7.5	United States	A provider of blogging services, most notably WordPress, and hosting for publishers and startups.
88	Ola Cabs	Mobility	7.5	India	A mobility platform operating in over 250 cities across India, Australia, New Zealand and the UK.
89	Carta	Fintech	7.4	United States	A cloud-based equity management solution that helps investors, and companies manage valuations and equity plans.
90	Snyk	Software and services	7.4	United States	A developer security company, which integrates directly into development tools, workflows and automation pipelines.

Table 2 continued: Top 100 unicorns globally

	Name	Classification	Valuation (USD bn)	Market	Business description
91	Scale AI	AI	7.3	United States	A data platform providing high quality training data for machine learning and AI applications.
92	Gong	Software & services	7.25	United States	A revenue intelligence platform designed to help capture and analyze customer interactions across phone, web conferencing and email.
93	Gemini	FinTech	7.1	United States	A regulated cryptocurrency exchange, wallet and custodian that facilitates and secures sales of bitcoin, ether, and other cryptocurrencies.
94	Toss	FinTech	7	South Korea	A mobile financial service platform used for borrowing and repaying funds, online purchases and paying bills in Korea.
95	We Doctor	Health & wellbeing	7	China	An online healthcare services company that connects medical institutions, doctors and patients.
96	Ro	Health & wellbeing	7	United States	A direct-to-patient healthcare company providing telehealth and in-home care, diagnostics, labs, and pharmacy services.
97	ConsenSys	FinTech	7	United States	A blockchain software technology company offering developer tools and enterprise solutions, supporting projects within the ethereum ecosystem.
98	Automation Anywhere	AI	6.8	United States	An American global software company that develops robotic process automation software.
99	1Password	Software & services	6.8	Canada	A blockchain and software company developing blockchain-based products and services.
100	Klarna	FinTech	6.7	Sweden	A fintech company operating within the payment services sector, working on a buy now, pay later model.

Source: Credit Suisse

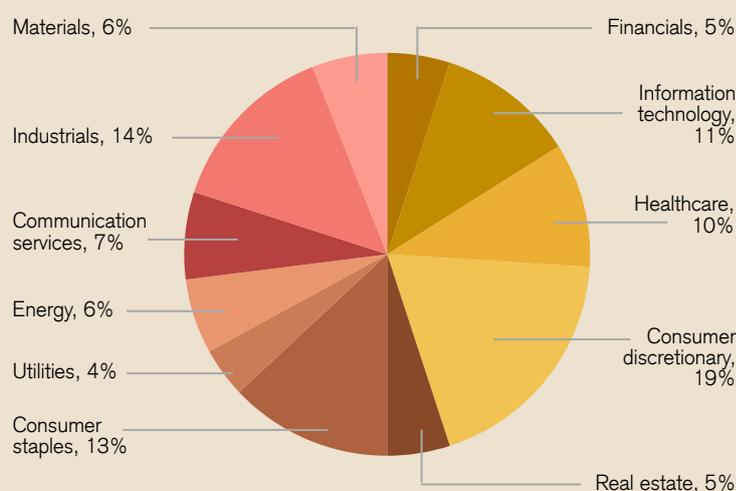


Credit Suisse Family Business Survey

To complement the statistical analysis underpinned by our CS Family 1000 database and the interviews we have conducted, we have also undertaken a survey of 200 companies globally – an equal mix of family-owned and non-family-owned companies – where we delve into questions pertaining to family involvement in the management of the business, the typical investment horizon as well as ESG considerations across family- and non-family-owned companies. We summarize the background of our survey and some of the key findings below. The fuller questionnaire and responses are available on request.

Our survey finds that family businesses have a long-term view on business strategy. For example, when deciding whether to approve investment projects, we found that family-owned companies tend to have longer payback periods than non-family companies. Furthermore, short-term cyclical headwinds tend not to impact family businesses as much as non-family businesses. On the topic of ESG, we find that a greater portion of respondents developing support packages for customers, suppliers and wider communities are family businesses. Family-owned companies also have a higher female representation across their board of directors. Reflecting on difficult market conditions, the most commonly indicated response for family businesses was to reduce payouts to shareholders and cut costs, including headcount reductions.

Figure 1: Survey distribution by industry



Source: Credit Suisse Family Business Survey 2023

Which of the following sectors best describes your business?

In terms of industry distribution, the majority of companies in our CS Family Business Survey were from the Consumer sectors (over 30%), Industrials (14%), Technology (10%) and Healthcare (10%).

Where is the family-run business you work(ed) for headquartered?

Geographically, our sample of companies is split more or less equally across the three regions, with Europe representing 38%, the USA representing 26% and APAC representing 35% of the companies we surveyed, split between China (20%) and India (15%).

Which generation do the current family owners of the business represent?

In terms of generational split, nearly half of the family business respondents were second generation (42%), followed by companies in their founding generation (24%) and finally third generation (21%).

What percentage of your company is still owned by family members or the original founders?

As mentioned earlier in the report, our cut-off for the definition of family business was a 20% ownership by the original founder or the family. We used the same cut-off for our survey. Of the respondents in our survey, over half of them had significant ownership from the family or the founder (over 50% ownership).

Figure 2: Geographical distribution of survey

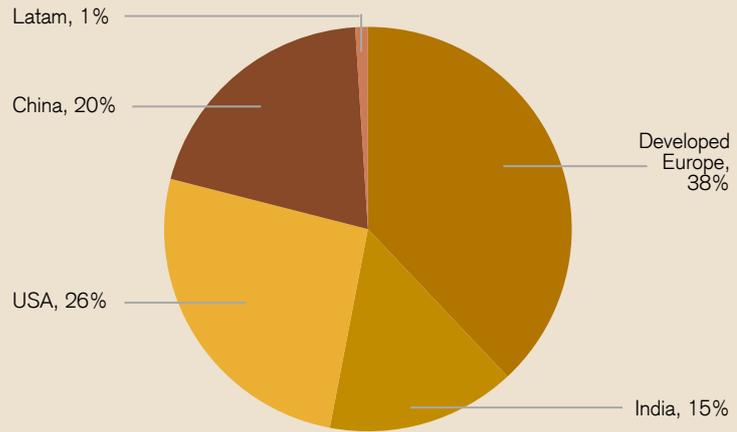


Figure 3: Generational distribution for family-owned companies

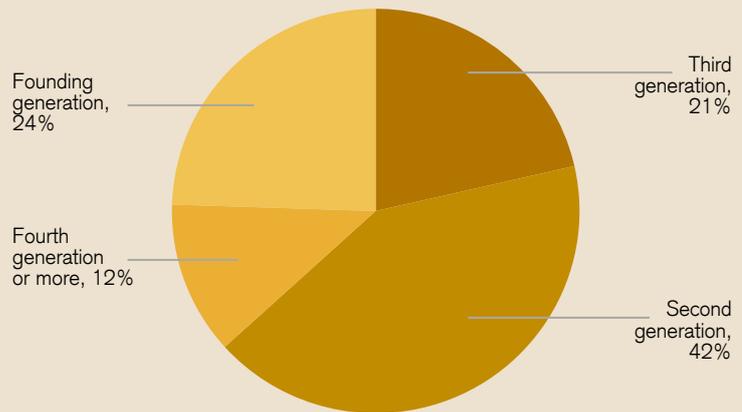
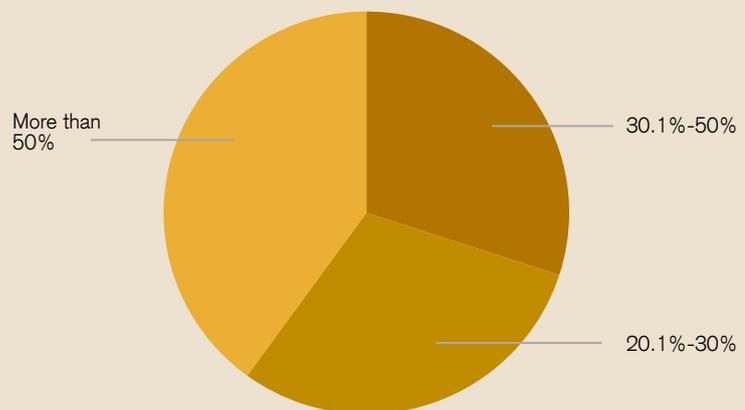
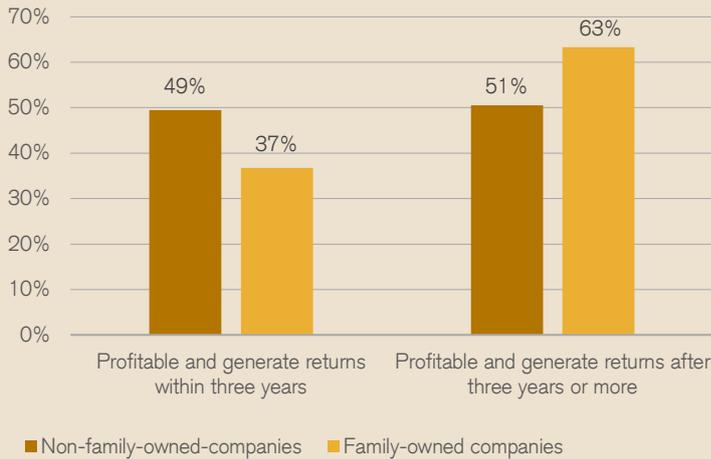


Figure 4: Percentage of companies still owned by family members or the original founders



Source: Credit Suisse Family Business Survey 2023

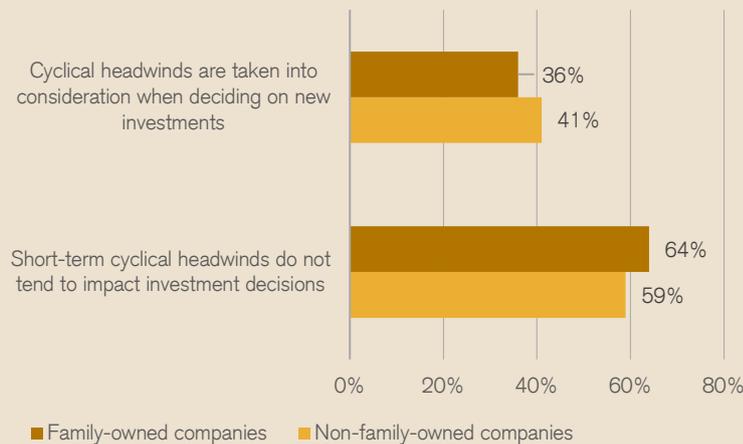
Figure 5: Payback periods for investment and capital expenditure decisions



Regarding investment and capital expenditure decisions, what payback period does your company typically use when deciding whether to approve these investments?

When deciding whether to approve investment projects, we found that family-owned companies tend to have longer payback periods than non-family companies. This supports our conclusion in Chapter 2 earlier, as family businesses tend to view investment decisions from a long-term perspective and therefore expect projects to be profitable over a longer time frame.

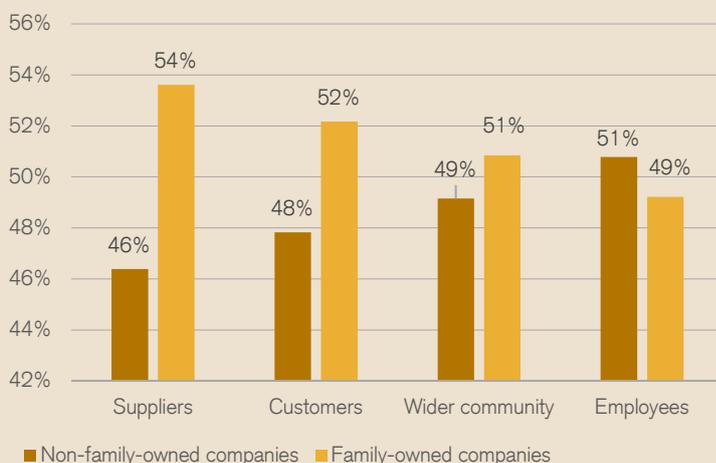
Figure 6: Impact of the economic cycle on companies' approach to investing



When thinking about the impact of the economic cycle on your company's approach to investing, which of the following applies most to your company?

Short-term cyclical headwinds tend not to impact family businesses as much as non-family businesses as only 36% of family-owned companies claimed cyclical headwinds are taken into consideration when deciding on new investments, compared to 41% of non-family companies.

Figure 7: ESG – respondents' support packages for customers, suppliers and wider communities



Current macro headwinds have a broad impact on societies. For which of the following stakeholders has your company developed support packages to cope with this?

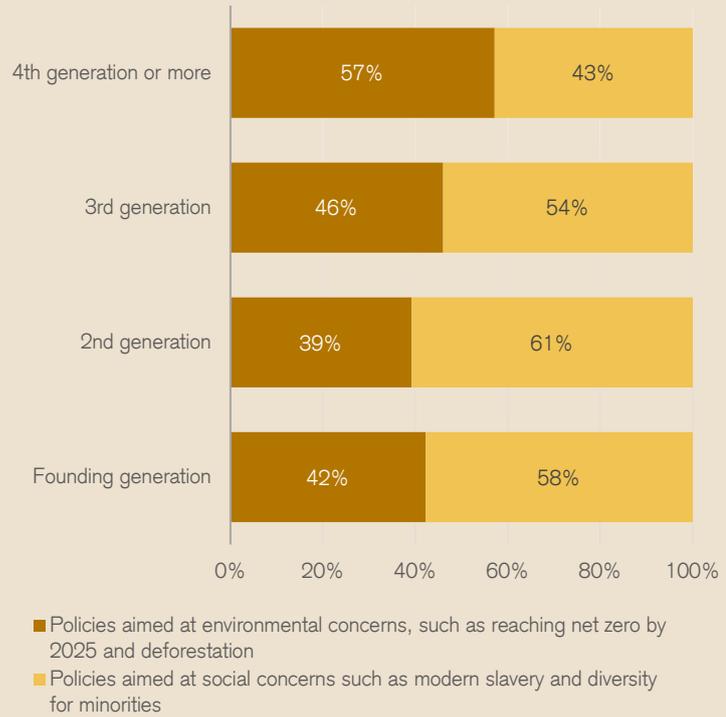
When reflecting on the social element of ESG scores, we find that a greater portion of respondents that develop support packages for customers, suppliers and wider communities are family businesses. Within the wider community, the split is more even. However, we found that more family businesses developed support packages for customers and suppliers.

Source: Credit Suisse Family Business Survey 2023

Sustainability is becoming an increasingly important aspect for corporates. With this in mind which of the following apply to your company?

Within the topic of ESG, our survey finds that later generations have a greater affinity toward environmental policies (biodiversity, net zero and deforestation), compared to earlier generations who were more focused on implementing social policies (diversity, modern slavery).

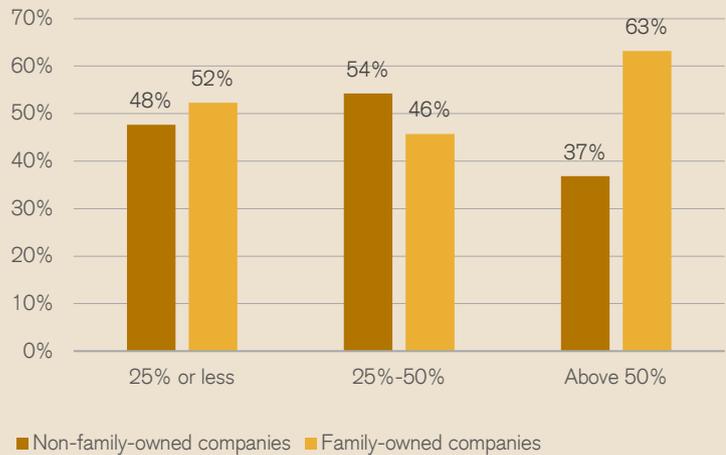
Figure 8: ESG – sustainability becoming an increasingly important aspect for corporates



In relation to your board, what percentage is made up of women?

Overall, family-owned companies have a higher female representation across their boards of directors. Sixty-three percent of respondents who claimed to have more than half of their board represented by women were family businesses, compared to just 37% being non-family businesses. Although we find that more non-family businesses fall within the 25%–50% bucket for female board representation, this balance is offset by the 50%+ bucket.

Figure 9: Percentage of female representation in boards of directors



Source: Credit Suisse Family Business Survey 2023

Figure 10: Expected annual revenue growth rate in 2023

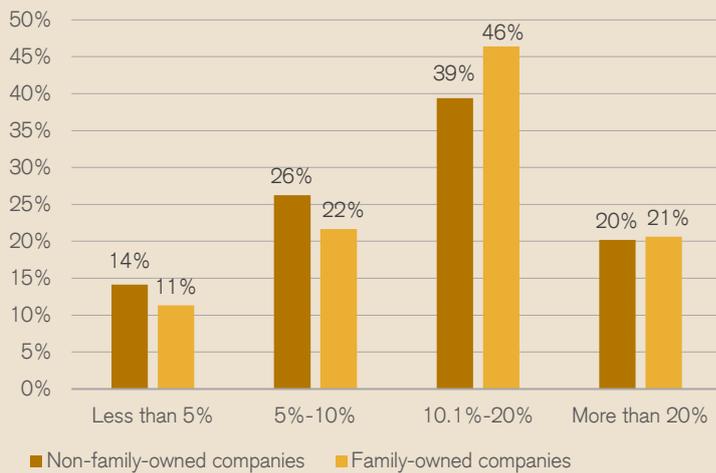


Figure 11: Response of family businesses to a recession or bear market

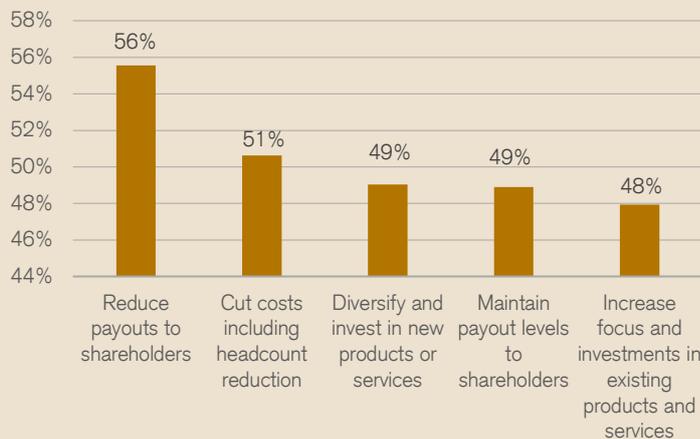
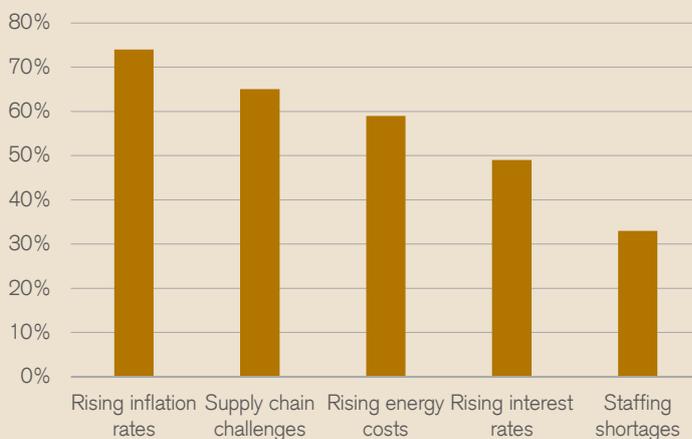


Figure 12: Developments with a meaningful negative impact in the current macroeconomic environment



Source: Credit Suisse Family Business Survey 2023

What is the likely annual revenue growth rate for your company next year (2023)?

Family businesses reported higher expected revenue growth rates for 2023 compared to non-family-owned companies, with a greater number of respondents expecting revenue to grow by over 10%. This is consistent with the long-term performance history of the Family 1000 universe, as discussed in Chapter 1.

Based on your experience, how does your company typically respond to a recession or bear market?

Reflecting on potential recession or difficult market conditions, the most commonly indicated response for family businesses was to reduce payouts to shareholders and cut costs, including headcount reductions.

Thinking about the current macro climate, Which of the following developments have had a meaningful negative impact on your business?

Rising inflation rates and supply-chain challenges were the greatest concern for family businesses in the current macroeconomic climate. The least concerning issue was staffing shortages.

General disclaimer / important information

Please note that the individual companies mentioned in this report are meant for illustration purposes only and are not intended as a solicitation or an offer to buy or sell any interest or any investment.

Risk factors

If referenced in this material:

Historical returns and financial market scenarios are not reliable indicators guarantee of future performance. The price and value of investments mentioned and any income that might accrue could fall or rise or fluctuate. Past performance is not a guide to future performance. If an investment is denominated in a currency other than your base currency, changes in the rate of exchange may have an adverse effect on value, price, or income. You should consult with such advisor(s) as you consider necessary to assist you in making these determinations. Investments may have no public market or only a restricted secondary market. Where a secondary market exists, it is not possible to predict the price at which investments will trade in the market or whether such market will be liquid or illiquid.

The retention of value of a bond is dependent on the creditworthiness of the Issuer and/or Guarantor (as applicable), which may change over the term of the bond. In the event of default by the Issuer and/or Guarantor of the bond, the bond or any income derived from it is not guaranteed and you may get back none of, or less than, what was originally invested.

Bonds are subject to market, issuer, liquidity, interest rate, and currency risks. The price of a bond can fall during its term, in particular due to a lack of demand, rising interest rates or a decline in the issuer's creditworthiness. Holders of a bond can lose some or all of their investment, for example if the issuer goes bankrupt.

Emerging market investments usually result in higher risks such as political, economic, credit, exchange rate, market liquidity, legal, settlement, market, shareholder, and creditor risks. Emerging markets are located in countries that possess one or more of the following characteristics: a certain degree of political instability, relatively unpredictable financial markets and economic growth patterns, a financial market that is still at the development stage or a weak economy. Some of the main risks are political risks, economic risks, credit risks, currency risks and market risks. Investments in foreign currencies are subject to exchange rate fluctuations.

Foreign currency prices can fluctuate considerably,

particularly due to macroeconomic and market trends. Thus, such involve e.g., the risk that the foreign currency might lose value against the investor's reference currency.

Equity securities are subject to a volatility risk that depends on a variety of factors, including but not limited to the company's financial health, the general economic situation and interest rate levels. Any pay out of profit (e.g., in the form of a dividend) is dependent on the company and its business performance. Equity securities are also subject to an issuer risk in that a total loss is possible, for example if the issuer goes bankrupt.

Private equity is private equity capital investment in companies that are not traded publicly (i.e., are not listed on a stock exchange). Private equity investments are generally illiquid and are seen as a long-term investment. Private equity investments, including the investment opportunity described herein, may include the following additional risks: (i) loss of all or a substantial portion of the investor's investment, (ii) investment managers may have incentives to make investments that are riskier or more speculative due to performance based compensation, (iii) lack of liquidity as there may be no secondary market, (iv) volatility of returns, (v) restrictions on transfer, (vi) potential lack of diversification, (vii) high fees and expenses, (viii) little or no requirement to provide periodic pricing and (ix) complex tax structures and delays in distributing important tax information to investors.

Political developments concerning environmental regulations may have a significant adverse impact on the investments. Heightened exposure to less regulated sectors and to businesses such as renewable resources that are not yet well established could cause temporary volatility.

ESG-related risks in a portfolio context need to become an integral part of the investment process because they can impact growth, profitability, or the cost of capital in the long term. ESG insights need to be combined with traditional fundamental analysis in order to obtain a comprehensive picture of a company and implement better-informed investment decisions.

Sustainable investments involve several risks that are fundamentally dependent on the investments in different asset classes, regions, and currencies. For example, investments in equities bear market (price) risk and specific company risk, investments in fixed-income bear credit, interest rate, and inflation risks. Similar market risks apply to investment funds and to alternative investments. Some

investments may be subject to foreign exchange currency risk, liquidity risk or/and emerging market risk. Sustainable investments bear the risk of suffering a partial or a total loss.

Risks associated with investments in cryptocurrencies and tokens (such as NFTs) include high volatility (e.g., due to low market capitalization, speculation and continually changing legal/regulatory frameworks) and various other risks (e.g., loss of access due to technical reasons or fraud etc.). Such investments may not be suitable for all investors. Before deciding to invest in Cryptocurrencies or tokens you are advised to carefully consider technical and regulatory developments in this field as well as your investment objectives, level of experience and risk appetite.

If nothing is indicated to the contrary, all figures are unaudited. To the extent this document contains statements about future performance, such statements are forward looking and subject to a number of risks and uncertainties. Predictions, forecasts, projections, and other outcomes described or implied in forward-looking statements may not be achieved. To the extent this document contains statements about past performance, simulations and forecasts are not a reliable indication of future performance. Significant losses are always possible.

Important information

This document constitutes marketing material. It has been prepared by Credit Suisse Group AG and/or its affiliates ("Credit Suisse") in collaboration with any authors referenced therein. The information and views expressed herein are those of the authors at the time of writing and not necessarily those of Credit Suisse. They are subject to change at any time without notice and without obligation on Credit Suisse or the authors to update. This document must not be read as independent investment research. This document is provided for informational and illustrative purposes only, does not constitute an advertisement, appraisal, investment research, research recommendations, investment recommendations or information recommending or suggesting an investment strategy and it does not contain financial analysis. Moreover, it does not constitute an invitation or an offer to the public or on a private basis to subscribe for or purchase products or services and does not release the recipient from exercising his/her judgement. Benchmarks, to the extent mentioned, are used solely for purposes of comparison. The information contained in this document has been provided as a general commentary only and does not constitute any form of personal recommendation, investment advice, legal, tax, accounting or other advice or recommendation or any other financial service. It does not take into account the investment objectives, financial situation or needs, or knowledge and experience of any persons. The information provided is not intended to constitute any kind of basis on which to make an investment, divestment, or retention decision. Before entering into any transaction, you should consider the suitability of the transaction to your particular circumstances and independently review (with your professional advisors as necessary) the specific financial risks as well as legal, regulatory, credit, tax and accounting consequences. The information and analysis contained in this document were compiled or derived from sources believed to be reliable. It was prepared by Credit

Suisse with the greatest of care and to the best of Credit Suisse's knowledge and belief, solely for information purposes and for the use by the recipient. Credit Suisse has not independently verified any of the information provided by any relevant authors and no representation or warranty, express or implied is made and no responsibility is or will be accepted by Credit Suisse as to, or in relation to the accuracy, reliability or completeness of any such information.

To the extent that this document provides the addresses of, or contains any hyperlinks to, websites, Credit Suisse has not reviewed such linked sites and takes no responsibility for the content contained therein. Such address or hyperlink (including addresses or hyperlinks to Credit Suisse's own website material) is provided solely for your convenience and information and the content of the linked site does not in any way, form part of this document. Accessing such website or following such link through this document or Credit Suisse's website shall be at your own risk.

Credit Suisse may not be held liable for direct, indirect or incidental, special or consequential damages resulting or arising from the use of these materials, regardless of whether such damages are foreseeable or not. The liability of Credit Suisse may not be engaged as regards any investment, divestment or retention decision taken by a person on the basis of the information contained in this document. Such person shall bear alone all risks of losses potentially incurred as a result of such decision. This material is not directed to, or intended for distribution to, or use by, any person or entity who is a citizen or resident of, or is located in, any jurisdiction where such distribution, publication, availability or use would be contrary to applicable law or regulation, or which would subject Credit Suisse to any registration or licensing requirement within such jurisdiction. The recipient is informed that a possible business connection may exist between a legal entity referenced in the present document and an entity part of Credit Suisse and that it may not be excluded that potential conflict of interests may result from such connection. Credit Suisse may be providing, or have provided within the previous 12 months, significant advice or investment services in relation to any company or issuer mentioned. A Credit Suisse Group company may have acted upon the information and analysis contained in this document before being made available to clients of Credit Suisse.

This document is intended only for the person to whom it is issued by Credit Suisse. It may not be reproduced either in whole, or in part, without Credit Suisse's prior written permission. Any questions about topics raised in this document should be made directly to your local relationship manager or other advisors.

Australia: This document is provided only to permitted recipients in Australia who qualify as wholesale clients as that term is defined by section 761G(7) of the Australian Corporations Act 2001 (Cth.) (the "Act") and as sophisticated or professional investors as defined by sections 708(8) and (11) (respectively) of the Act, in respect of which an offer would not require disclosure under Chapter 6D or Part 7.9 of the Act. This document is not a prospectus, product disclosure statement or any other form of prescribed offering document under the Act. This document is not required to, and does not, contain all the information which would be

required in either a prospectus, product disclosure statement or any other form of prescribed offering document under the Act, nor is it required to be submitted to the Australian Securities and Investments Commission. In Australia, Credit Suisse Group entities, other than Credit Suisse AG, Sydney Branch, are not authorised deposit-taking institutions for the purposes of the Banking Act 1959 (Cth.) and their obligations do not represent deposits or other liabilities of Credit Suisse AG, Sydney Branch. Credit Suisse AG, Sydney Branch does not guarantee or otherwise provide assurance in respect of the obligations of such Credit Suisse entities. **Austria:** This report is distributed by CREDIT SUISSE (LUXEMBOURG) S.A. Zweigniederlassung Österreich (the "Austria branch") which is a branch of CREDIT SUISSE (LUXEMBOURG) S.A., a duly authorized credit institution in the Grand Duchy of Luxembourg with registered address 5, rue Jean Monnet, L-2180 Luxembourg. The Austria branch is subject to the prudential supervision of the Luxembourg supervisory authority, the Commission de Surveillance du Secteur Financier (CSSF), 283, route d'Arlon, L-2991 Luxembourg, Grand Duchy of Luxembourg, as well as of the Austrian supervisory authority, the Financial Market Authority (FMA), Otto-Wagner Platz 5, A-1090 Vienna, Austria. **Bahrain:** This information is being distributed by Credit Suisse AG, Bahrain Branch, duly licensed and regulated by the Central Bank of Bahrain ("CBB") as an Investment Business Firm - Category 2 (Branch). Related financial services or products are only made available to Accredited Investors, as defined by the CBB, and are not intended for any other persons. Credit Suisse AG, Bahrain Branch is a Foreign Branch of Credit Suisse AG, Zurich/Switzerland and is located on Level 21, East Tower, Bahrain World Trade Centre, Manama, Kingdom of Bahrain; **DIFC:** This information is being distributed by Credit Suisse AG (DIFC Branch). Credit Suisse AG (DIFC Branch) is licensed and regulated by the Dubai Financial Services Authority ("DFSA"). Related financial services or products are only made available to Professional Clients or Market Counterparties, as defined by the DFSA, and are not intended for any other persons. Credit Suisse AG (DIFC Branch) is located on Level 9 East, The Gate Building, DIFC, Dubai, United Arab Emirates. **France:** This report is distributed by Credit Suisse (Luxembourg) S.A. Succursale en France (the "France branch") which is a branch of Credit Suisse (Luxembourg) S.A., a duly authorized credit institution in the Grand Duchy of Luxembourg with registered address 5, rue Jean Monnet, L-2180 Luxembourg. The France branch is subject to the prudential supervision of the Luxembourg supervisory authority, the Commission de Surveillance du Secteur Financier (CSSF), and of the French supervisory authority, the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and of the Autorité des Marchés Financiers. **Germany:** This report is distributed by Credit Suisse (Deutschland) Aktiengesellschaft is authorised by the Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin) and supervised by BaFin and the German Central Bank (Deutsche Bundesbank) in Germany; **Guernsey:** This report is distributed by Credit Suisse AG Guernsey Branch, a branch of Credit Suisse AG (incorporated in the Canton of Zurich), with its place of business at Helvetia Court, Les Echelons, South Esplanade, St Peter Port, Guernsey. Credit Suisse AG Guernsey Branch is wholly owned by Credit Suisse AG and is regulated by the Guernsey Financial Services Commission. Copies of the latest audited accounts are available on request.

Hong Kong: This material is distributed in Hong Kong by Credit Suisse AG, Hong Kong Branch, an Authorized Institution regulated by the Hong Kong Monetary Authority and a Registered Institution regulated by the Securities and Futures Commission. The contents of this material have not been reviewed by any regulatory authority in Hong Kong. You are advised to exercise caution in relation to any offer. If you are in any doubt about any of the contents of this material, you should obtain independent professional advice. No one may have issued or had in its possession for the purposes of issue, or issue or have in its possession for the purposes of issue, whether in Hong Kong or elsewhere, any advertisement, invitation or material relating to any product, which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than where a product is or is intended to be disposed of only to persons outside Hong Kong or only to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong and any rules made thereunder. **India:** This report is distributed by Credit Suisse Securities (India) Private Limited (CIN no. U67120MH1996PTC104392) regulated by the Securities and Exchange Board of India as Research Analyst (registration no. INH 000001030), as Portfolio Manager (registration no. INP000002478) and as Stock Broker (registration no. INZ000248233), having registered address at 9th Floor, Ceejay House, Dr. Annie Besant Road, Worli, Mumbai - 400 018, India, T- +91-22 6777 3777. **Italy:** This report is distributed in Italy by Credit Suisse (Italy) S.p.A., a bank incorporated and registered under Italian law subject to the supervision and control of Banca d'Italia and CONSOB. **Japan:** by Credit Suisse Securities (Japan) Limited, Financial Instruments Firm, Director-General of Kanto Local Finance Bureau (Kinsho) No. 66, a member of Japan Securities Dealers Association, The Financial Futures Association of Japan, Japan Investment Advisers Association, Type II Financial Instruments Firms Association. **Lebanon:** In Lebanon, this material is distributed by Credit Suisse (Lebanon) Finance SAL ("CSLF"), a financial institution incorporated in Lebanon, regulated by the Central Bank of Lebanon ("CBL") and having financial institution license number 42. Credit Suisse (Lebanon) Finance SAL is subject to the CBL laws and circulars as well as the laws and regulations of the Capital Markets Authority of Lebanon ("CMA"). CSLF is a subsidiary of Credit Suisse AG and part of the Credit Suisse Group (CS). **Luxembourg:** This report is distributed by Credit Suisse (Luxembourg) S.A., a duly authorized credit institution in the Grand Duchy of Luxembourg with registered address 5, rue Jean Monnet, L-2180 Luxembourg. Credit Suisse (Luxembourg) S.A. is subject to the prudential supervision of the Luxembourg supervisory authority, the Commission de Surveillance du Secteur Financier (CSSF); **Mexico:** Banco Credit Suisse (México), S.A. (transactions related to the securities mentioned in this report will only be effected in compliance with applicable regulation); Banco Credit Suisse (México), S.A., Institución de Banca Múltiple, Grupo Financiero Credit Suisse (México) and C. Suisse Asesoría México, S.A. de C.V. ("Credit Suisse Mexico"). This document is elaborated for information purposes only and does not constitute a recommendation, advice or an invitation to execute any operation and does not replace direct communication with your relationship manager at Credit Suisse Mexico before the execution of any

investment. The people who elaborated this document do not receive payment or compensation from any entity of the Credit Suisse Group other than the one employing them. The prospectuses, offering documentation, term sheets, investment regimes, annual reports and periodical financial information contained useful information for investors. Such documents can be obtained without any cost, directly from the issuer of securities and investment fund managers or at the securities and stock market web page, as well as from your relationship manager at Credit Suisse Mexico. The information herein does not substitute the Account Statements, the INFORME DE OPERACIONES or/ and confirmations you receive from Credit Suisse Mexico pursuant to the General Rules applicable to financial institutions and other persons that provide investment services. C. Suisse Asesoría México, S.A. de C.V., is an investment advisor duly incorporated under the Securities Market Law ("LMV") and is registered before the National Banking and Securities Commission ("CNBV") under folio number 30070 and therefore is not a bank, is not authorized to receive deposits nor to custody any securities, is not part of Grupo Financiero Credit Suisse (México), S.A. de C.V. Under the provisions of the LMV, C. Suisse Asesoría México, S.A. de C.V. is not an independent investment advisor pursuant to its relationship with Credit Suisse AG, a foreign financial institution, and its indirect relationship with Grupo Financiero Credit Suisse (Mexico), S.A. de C.V. The people who produced this document do not receive payment or compensation from any entity of the Credit Suisse Group other than the one employing them. **Netherlands:** This report is distributed by Credit Suisse (Luxembourg) S.A., Netherlands Branch (the "Netherlands branch") which is a branch of Credit Suisse (Luxembourg) S.A., a duly authorized credit institution in the Grand Duchy of Luxembourg with registered address 5, rue Jean Monnet, L-2180 Luxembourg. The Netherlands branch is subject to the prudential supervision of the Luxembourg supervisory authority, the Commission de Surveillance du Secteur Financier (CSSF), and of the Dutch supervisory authority, De Nederlandsche Bank (DNB), and of the Dutch market supervisor, the Autoriteit Financiële Markten (AFM). **Portugal:** This report is distributed by Credit Suisse (Luxembourg) S.A., Sucursal em Portugal (the "Portugal branch") which is a branch of Credit Suisse (Luxembourg) S.A., a duly authorized credit institution in the Grand Duchy of Luxembourg with registered address 5, rue Jean Monnet, L-2180 Luxembourg. The Portugal branch is subject to the prudential supervision of the Luxembourg supervisory authority, the Commission de Surveillance du Secteur Financier (CSSF), and of the Portuguese supervisory authority, the Comissão do Mercado dos Valores Mobiliários (CMVM). **Qatar:** This information has been distributed by Credit Suisse (Qatar) L.L.C., which is duly authorized and regulated by the Qatar Financial Centre Regulatory Authority (QFCRA) under QFC License No. 00005. All related financial products or services will only be available to Business Customers or Market Counterparties (as defined by the QFCRA), including individuals, who have opted to be classified as a Business Customer, with net assets in excess of QR 4 million, and who have sufficient financial knowledge, experience and understanding to participate in such products and/or services. Therefore this information must not be delivered to, or relied on by, any other type of individual. **Saudi Arabia:** This

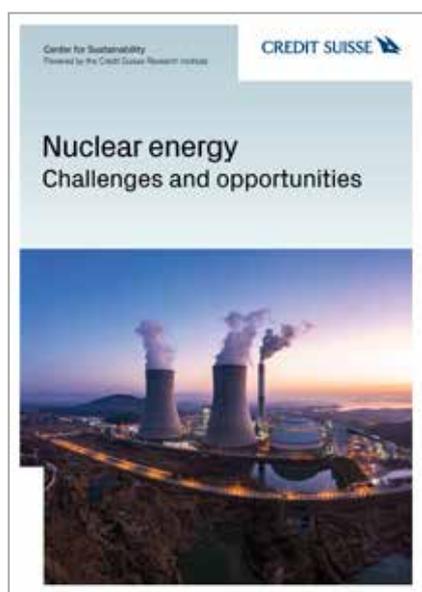
document is being distributed by Credit Suisse Saudi Arabia (CR Number 1010228645), duly licensed and regulated by the Saudi Arabian Capital Market Authority pursuant to License Number 08104-37 dated 23/03/1429H corresponding to 21/03/2008AD. Credit Suisse Saudi Arabia's principal place of business is at King Fahad Road, Hay Al Mhamadiya, 12361-6858 Riyadh, Saudi Arabia. Website: www.credit-suisse.sa. **Singapore:** This material is distributed in Singapore by Credit Suisse AG, Singapore Branch, which is licensed by the Monetary Authority of Singapore under the Banking Act (Cap. 19) to carry on banking business. This material has been prepared and issued for distribution in Singapore to institutional investors, accredited investors and expert investors (each as defined under the Financial Advisers Regulations (the "FAR")) only. By virtue of your status as an institutional investor, accredited investor, or expert investor, Credit Suisse AG, Singapore Branch is exempted from complying with certain requirements under the Financial Advisers Act 2001 (the "FAA"), the FAR and the relevant Notices and Guidelines issued thereunder, in respect of any financial advisory service which Credit Suisse AG, Singapore branch may provide to you. These include exemptions from complying with: Section 34 of the FAA (pursuant to Regulation 33(1) of the FAR); Section 36 of the FAA (pursuant to Regulation 34(1) of the FAR); and Section 45 of the FAA (pursuant to Regulation 35(1) of the FAR). Singapore recipients should contact Credit Suisse AG, Singapore Branch for any matters arising from, or in connection with, this material. **South Africa:** This information is being distributed by Credit Suisse AG which is an authorized financial services provider under the Financial Advisory and Intermediary Services Act and is registered with the Financial Sector Conduct Authority in South Africa with FSP number 9788 and / or by Credit Suisse (UK) Limited which is an authorized financial services provider under the Financial Advisory and Intermediary Services Act and is registered with the Financial Sector Conduct Authority in South Africa with FSP number 48779. **Spain:** This report is distributed in Spain by Credit Suisse AG, Sucursal en España, legal entity registered at Comisión Nacional del Mercado de Valores. **Turkey:** The investment information, comments and recommendations contained herein are not within the scope of investment advisory activity. The investment advisory services are provided by the authorized institutions to the persons in a customized manner taking into account the risk and return preferences of the persons. Whereas, the comments and advices included herein are of general nature. Therefore recommendations may not be suitable for your financial status or risk and yield preferences. For this reason, making an investment decision only by relying on the information given herein may not give rise to results that fit your expectations. This report is distributed by Credit Suisse Istanbul Menkul Degerler Anonim Sirketi, regulated by the Capital Markets Board of Turkey, with its registered address at Levazim Mahallesi, Koru Sokak No. 2 Zorlu Center Terasevler No. 61 34340 Besiktas/ Istanbul-Turkey. **United Kingdom:** This material is distributed by Credit Suisse (UK) Limited. Credit Suisse (UK) Limited, is authorized by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority. Where this material is

distributed into the United Kingdom by an offshore Credit Suisse entity to a client or a prospective client not exempted under the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 the following will apply: To the extent communicated in the United Kingdom ("UK") or capable of having an effect in the UK, this document constitutes a financial promotion which has been approved by Credit Suisse (UK) Limited which is authorized by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority for the conduct of investment business in the UK. The registered address of Credit Suisse (UK) Limited is Five Cabot Square, London, E14 4QR. Please note that the rules under the UK's Financial Services and Markets Act 2000 relating to the protection of clients will not be applicable to you and that any potential compensation made available to "eligible claimants" under the UK's Financial Services Compensation Scheme will also not be available to you. Tax treatment depends on the individual circumstances of each client and may be subject to changes in future.

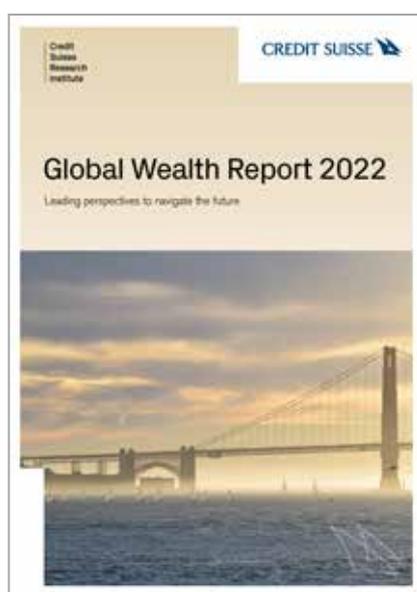
United States of America: This document is issued and distributed in the United States of America by Credit Suisse Securities (USA) LLC, a member of NYSE, FINRA, SIPC and the NFA, and CSSU accepts responsibility for its contents. Clients should contact analysts and execute transactions through a Credit Suisse subsidiary or affiliate in their home jurisdiction unless governing law permits otherwise. This report may not be reproduced either in whole or in part, without the written permission of Credit Suisse.

© 2023 Credit Suisse Group AG and/or its affiliates.
All rights reserved.

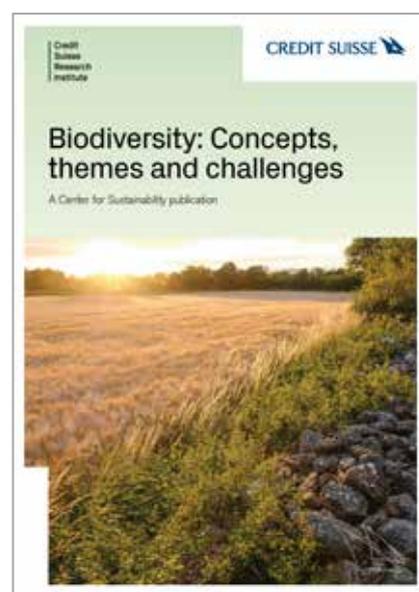
Also published by the Research Institute



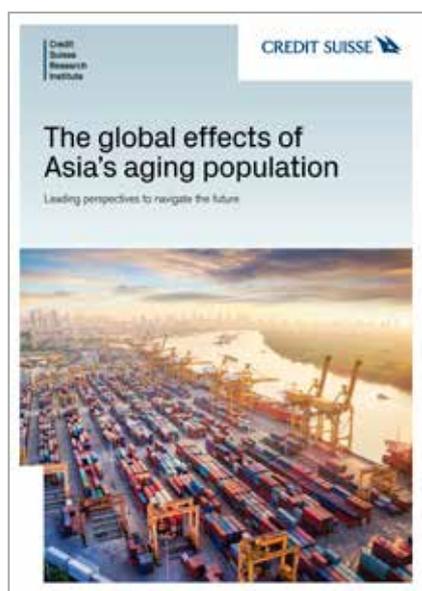
Nuclear energy: Challenges and opportunities
July 2022



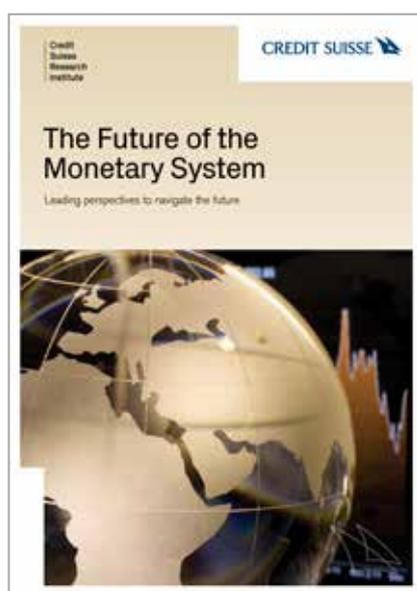
Global Wealth Report 2022
September 2022



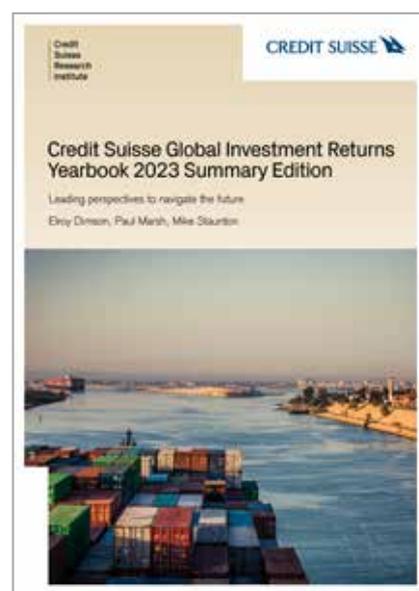
Biodiversity: Concepts, themes and challenges
September 2022



The global effects of Asia's aging population
October 2022



The Future of the Monetary System
January 2023



Summary Edition Global Investment Returns Yearbook 2023
February 2023

For illustrative purposes only

CREDIT SUISSE 

CREDIT SUISSE AG
[credit-suisse.com](https://www.credit-suisse.com)